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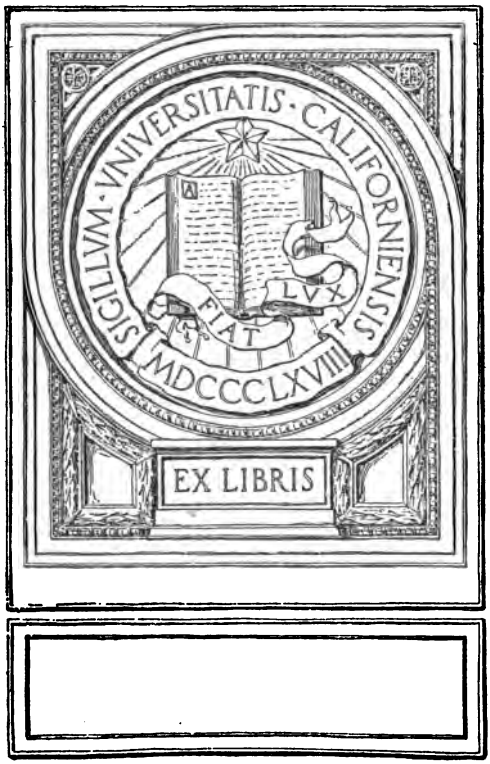
THE THEORY OF EARNED AND UNEARNED INCOMES

BROWN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THE THEORY OF EARNED AND UNEARNED INCOMES

THE THEORY OF

EARNED AND UNEARNED INCOMES

A STUDY OF

THE ECONOMIC LAWS OF DISTRIBUTION

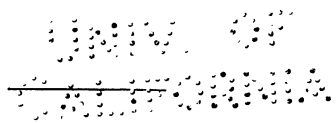
WITH SOME OF THEIR APPLICATIONS TO SOCIAL POLICY

BY

HARRY GUNNISON BROWN

PROFESSOR OF ECONOMICS IN THE UNIVERSITY OF MISSOURI

Author of
"Principles of Commerce"



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PREFACE

The study here offered is intended to appeal to several classes of readers. My hope is that it will be read by, among others, socialists of the Marxian school, single taxers, and economists. For those orthodox or Marxian socialists who are willing to reexamine the theoretical foundations of their doctrines, interest will attach to the classification of incomes and to the attempt to distinguish between incomes which are earned and incomes which are unearned. The Marxian view that all income from *property* is "surplus value" and represents exploitation, is not accepted, but it is made clear that *some* income from property—as, indeed, from labor also—is unearned. To single taxers the discussion, in Chapter VI, of land rent and its taxation will perhaps be of chief interest, but the rest of the book leads up to and supplements the chapter on land rent in a way to make the whole study significant for this class of readers. I venture to hope, also, that professional economists, as such, will find enough of critical and constructive material in the text and footnotes, to make the study of interest to them. Finally, the book is intended to make an appeal to serious readers of no particular school or of any school of thought and of any business or profession, who are concerned with the evils in our present economic system and who look forward to worth-while changes during or after the war. World-wide democracy will be but half achieved if it be achieved in the political realm only, with no accompanying economic changes.

392341

I am under obligation to the *Quarterly Journal of Economics* for permission to republish, substantially without change, the major part of an article on "The Marginal Productivity versus the Impatience Theory of Interest," first published in August, 1913. To the *American Economic Review* I am indebted for permission to use, also in Chapter IV, most of an article on "The Discount versus the Cost-of-Production Theory of Capital Valuation," originally published in June, 1914. To the *Journal of Political Economy* I am indebted for permission to republish, in Chapter VI, along with later additions, an article on "The Ethics of Land-Value Taxation," which appeared in May, 1917. The Macmillan Company have kindly consented to the use in Chapter I of this book, of about eight pages taken from the first two Chapters of my *Principles of Commerce,* published by them. Professor H. J. Davenport of Cornell University has given the manuscript a conscientious and critical overhauling and although I have not been able to accept all of his suggestions, the book has been improved because of his criticisms. To my wife I owe thanks for a careful and critical reading of the entire manuscript and for reading the proof.

HARRY GUNNISON BROWN

Columbia, Mo.

May, 1918.

SUGGESTIONS TO READERS

To the general reader whose time or patience may not permit his following the more difficult parts of the argument set forth in the succeeding pages but who nevertheless seeks an understanding of the principal practical conclusions reached, it is suggested that Chapters I, II and IV (but not the Introduction) be entirely omitted, along with the critical footnote discussions in the other chapters. But Chapter IV cannot fairly be omitted by the reader who, familiar with the controversial literature on the theory of the interest rate, has tentatively adopted a conclusion in disagreement with that presented herein. Nor, indeed, should the critically-minded reader fail to glance at the footnotes, since these are inserted in many cases for the express purpose of meeting anticipated criticisms.

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CHAPTER II. ULTIMATE DETERMINANTS OF VALUE.

CHAPTER III. THE CAUSES OF INTEREST.

CHAPTER IV. THE RATE OF INTEREST.

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THE THEORY OF EARNED AND UNEARNED INCOMES

Briefly, then, the universal basis of co-operation is the proportioning of benefits received to services rendered.

HERBERT SPENCER

He who by any exertion of mind or body adds to the aggregate of enjoyable wealth, increases the sum of human knowledge or gives to human life higher elevation or greater fullness—he is in the large meaning of the words, a "producer," a "workingman," a "laborer," and is honestly earning honest wages. But he who without doing aught to make mankind richer, wiser, better, happier, lives on the toil of others—he, no matter by what name of honor he may be called, or how lustily the priests of Mammon may swing their censers before him, is in the last analysis but a beggarman or a thief.

HENRY GEORGE

UNIV. OF CALIFORNIA

THE THEORY OF EARNED AND UNEARNED INCOMES

INTRODUCTION

THE POINT OF VIEW

The science of economics may be pursued, as may any science, purely for its own sake. Its pursuit may be an intellectual amusement of the cultured, and the contemplation of its conclusions may be enjoyed by its votaries as one would enjoy a great epic. But the study of economics may also furnish guidance in matters of social policy and may thus serve two ends of which the second is probably by far the more important.

In attempting, through the succeeding pages, to outline a theory of earned and unearned incomes, we shall not be able to lose sight of this second end. We shall, indeed, be continually inquiring *how* economic forces work, e. g., what influences fix value and price, what are the conditions which cause interest to be paid, how interest rates are determined, what conditions fix wages, what influences make land rent rise or fall. But back of our search for these *scientific laws* there will lie a *purpose* and a *point of view*. The purpose will be to find out those things in the theory of income distribution the knowledge of which may help us to the fairest possible economic organization of society. The *point of view* will be some notion as to what tests determine whether an income is earned or not and some sort of ideal

regarding the desirability of permitting individuals to enjoy incomes which are not earned. With certain qualifications which will become clear as our investigation proceeds, we shall regard incomes as earned when equivalent service is given by their recipients to those from whom the incomes are ultimately drawn; and we shall regard incomes as unearned when their recipients enjoy them without making a corresponding return.

Whether such a distinction has any significance for any individual reader, will depend much on his ethical viewpoint, his general social philosophy. To one who regards absolute equality of incomes as the economic ideal, however great the differences in efficiency, an investigation into the question whether various incomes are earned or not, will seem irrelevant. Likewise, to one who regards the existence of privileged classes drawing large incomes, as a desirable condition of economic and social life, there will be little significance in a conclusion that many of these large incomes are wholly or partly unearned. But there are persons who believe, more or less on utilitarian grounds, that economic society is not well organized unless incomes have some reasonable relation to service rendered by the recipients to those from whom the incomes are in the last analysis, received, and that no class of citizens (unless by way of charitable relief) should be privileged to receive incomes not based on such service. To persons who hold this view, an analysis of incomes which leads eventually to their classification as earned and unearned may seem in very truth to constitute the first step of an inquiry into *the nature and possibility of economic democracy.*

CHAPTER I

THE DETERMINATION OF VALUE

§ 1

Value, or the Analogue of Value, to the Isolated Man

By value, in the sense of value in exchange, we ordinarily mean the number of units of some other good or goods, taken as a standard or measure of value[1], that any given article or immaterial benefit will bring in trade. Thus, the value of a man's horse may be 150 bushels of wheat or 30 tons of coal or 75 days of common labor or two dozen operatic performances. The thought is that the horse would sell for—would bring in exchange—such an amount of other goods. Since money is the medium by which exchanges are commonly effected and, therefore, a generally recognized measure of value, we ordinarily express exchange relations in terms of money. We would be much more likely to state the value of the horse as $160 than to state it as (for example) 30 tons of coal. Everyone sells goods for money or buys goods with money or both. Everyone is tolerably familiar with the value of the money unit in terms of various other goods. Everyone knows, that is, about how much of various other goods a dollar will buy. Consequently the statement that a horse is worth $160 includes the other statements and can be readily translated into them. Valuation of

[1] Jevons, *The Theory of Political Economy*, fourth edition, London (Macmillan), 1911, pp. 78-83.

goods in terms of money is really valuation of them in terms of goods-in-general.

Exchange value is a social phenomenon. It involves the exchanging of one kind of goods for another kind (or kinds) of goods and a comparison of the utility or desirability of the one kind with that of the other. Such a comparison will presumably be made, in fact, by both parties to an exchange. But though exchange value is thus a phenomenon involving human relations as well as involving goods and so is a social phenomenon, nevertheless nearly all of the factors that enter into its determination exist in a state of isolation such as that of a Robinson Crusoe. And so we may, perhaps, with advantage, begin our study of value by a consideration of the comparisons that might enter the mind of a Crusoe who, alone on his island, is engaged in eking out a precarious living. To Crusoe, as to a man in the most advanced modern community, must be presented frequently the necessity of making a choice among different commodities, all of which together he can not secure in anything like the number or quantity desired, and all of which, possibly, he cannot use, since some may be substitutes for others. He must, therefore, compare the utility of one kind of goods with the utility of something else. It may be that he has occasion to decide whether a month's labor which he can spare from other purposes shall be used to build an additional room to his hut or dugout, or whether it shall be used to make him a canoe; whether today's efforts shall be devoted to killing and dressing a goat or whether the day shall be spent in catching fish. There is,

of course, for Crusoe, no value in the sense of power in exchange, since there is no one with whom exchanges can be made. But there is value, if we may use the term in an analogous case, in the sense of comparison of one thing with some other thing or things, i. e. there is comparative utility. If Crusoe would rather spend a month's labor which he has available, in building an additional room than in constructing a canoe, it is probably because the utility of the room is greater to him than the utility of the canoe, or, at any rate, that he believes it to be greater. If he could make the canoe in two weeks and a new goat-skin suit in another two weeks but would rather devote all four weeks to building the additional room, then the room has greater utility to him than the canoe and suit together; or, if the canoe and suit are reckoned equal, the room has more than twice the utility of either. Were Crusoe in a small community with several other inhabitants, he would perhaps be willing to make two canoes for two of his fellow islanders, in return for their building the additional room for him. Then we could say that the value of the room was two canoes or that a canoe was worth the half completed room. Crusoe, alone on his island, can make no trade; but he can appraise the room in terms of canoes and clothes to the extent of deciding whether he will produce the one or the other two. Similar comparisons would be made in the case of goods satisfying somewhat the same need. For a quart of berries, Crusoe might be willing to work two hours and for a boiled lobster two hours. Then the lobster would

be worth, to Crusoe, two quarts of berries. Each article can be compared with each other, directly or through the common means of purchasing them all from nature, viz. labor.[2]

We have now to take into consideration another fact, so far not mentioned. This is that successive units of any article or service have a progressively lower degree of utility. Crusoe's one suit of goat skin, if he can afford no more, will have great utility to him, will be, in fact, indispensable. A second suit will be, perhaps, important but not as much so. A third will be comparatively unimportant. Similarly, a one-room shelter will be indispensable; a second room may be almost indispensable; a third will be a great convenience, a fourth somewhat convenient, and so on. It is certain that Crusoe will get himself enough food to support life, if he possibly can. It is pretty certain that he will build and keep in some repair one room. It is pretty certain that he will keep himself supplied with one suit of clothes. How much beyond these essentials he will go will depend upon his intensity of desire for comforts and luxuries and also upon his strength, energy and willingness to work.

Having seen that the utility of any good diminishes for Crusoe according as he has a large amount of that good, let us reexamine our conclusion regarding the utility to him of a room as compared with that of a canoe. The comparative utilities of these two items of wealth will depend on how much room Crusoe already has as well as upon his

[2] Or labor and waiting. See Chapters III and IV.

need for room in general or for a canoe. If he has no room at all, a one-room hut will probably seem much more important to him than a canoe, and, rather than go without it, he might be willing to do much more work than he would do for a small boat. But the utility of a second room would be less and that of a third still less. Suppose Crusoe would as soon have a canoe as to have the third room. Then he would be willing to devote as much labor to getting the one as to securing the other. If the time necessary to build an additional room is four weeks and that necessary to make a canoe is two weeks, he would choose the canoe after he had a sufficient number of rooms so that an additional room would have less than twice the (marginal) utility of a canoe. If, that is, the labor of building a room remains always twice that of making a canoe, regardless of the number of rooms added, then this labor cost determines the number of rooms which Crusoe will build in preference to a canoe and, therefore, the marginal utility of a room (the utility of the last, final or marginal room). The value of a room in terms of canoes will depend upon the utility of an additional room, but this utility will depend upon the number of rooms Crusoe already has and this, again, will depend upon the labor required to build a room.

But suppose that the nearby available material for house building is scarce, that additional rooms necessitate longer trips for materials, and, perhaps, greater search to find materials that are satisfactory,—in other words, that the labor of constructing additional rooms becomes progressively

greater as more rooms are built. Then the labor of construction no more determines the utility and value of a room than its utility and value determine the amount of labor which Crusoe will undergo to build it. For if the utility of additional rooms to Crusoe is little, he will construct but one or two rooms and the labor of construction will be slight; whereas, if the utility of additional rooms is great, he will build them, in preference to a canoe, until the labor of construction (per added room) is considerable. Nevertheless it will still be true that when the utility of an additional room becomes less in relation to the labor of construction than is the utility of a canoe in relation to the labor of its construction, Crusoe will cease adding rooms and will turn to the building of a canoe. And the value of a room will still be measured by its utility *in relation* to the utility of a canoe, or by the labor of its construction in relation to the labor of constructing a canoe. Either method of measurement is correct since either is equivalent[3] to the other.

§ 2

Conditions Determining The Extent of An Isolated Man's Production

Having considered the principles determining the relative amounts of different goods that an isolated man will produce, and the values or the comparative utilities of these goods,[4] we may now profitably give brief attention to the considera-

[3] At the margin.

[4] See, however, the further considerations in Chapter IV, § 1.

tions determining the total amount of such a man's production. Of course Crusoe will produce necessary food. It is scarcely less certain that he will make himself some clothing and get at least a crude kind of shelter. His different wants will receive satisfaction in the order of and to the extent commensurate with their importance and the ease with which they can be satisfied. The wants remaining unsatisfied will be of progressively less importance in relation to the effort or other sacrifice necessary to satisfy them. On the other hand, additional hours of labor per day soon come to involve discomfort and sacrifice to an increasing degree. If Crusoe works thirteen hours, he will almost certainly find the thirteenth hour of labor harder than the tenth, eleventh or twelfth. He will choose to work eight, ten, twelve or thirteen hours as the case may be, according to the relation between the utility to him of the goods which the last hour's work produces and the disutility (discomfort or labor sacrifice) of the last hour's work. If the importance to him of the goods which his tenth hour produces is more than enough to compensate him for the work done, then he will work ten hours. Or, perhaps, at nine hours and three-quarters the last minute's work just balances in sacrifice the gains to be secured. Then it will be a matter of indifference to him whether he works nine hours and forty-four minutes or nine hours and forty-five minutes, but he will not work nine hours and forty-six minutes.[5]

[5] See Jevons, *The Theory of Political Economy,* fourth edition, p. 173.

§ 3

Utility, Relative Production of Different Goods, and Value, in a Modern Community

We have seen how an isolated man compares the utility of different objects and what considerations determine the amounts of them that he will produce. Let us now consider how values are determined in a *community* of persons, where there is division of labor and where, therefore, exchange of goods is a characteristic feature of economic life. In general, and with a qualification which will be made shortly,[6] an isolated group of producers, or an entire community isolated from other communities, or society as a whole, produces to a larger degree those things of which its members desire large amounts, provided the sacrifice or cost of production is no greater, and produces to a less extent goods not so much desired. Suppose, for instance, that we are considering a community whose members desire large amounts of bread and, therefore, wheat, but only a small quantity of apples. Then large amounts of wheat will be produced and not many apples. But since the producers of wheat and of apples do not consume most of their own production, their relative tastes and preferences as between these two kinds of goods can not, to any large extent, act upon them directly. It is the tastes and preferences of buyers which affect price by influencing demand. Thus the large general demand for wheat means that there are many persons willing to pay a good

[6] See second and third paragraphs after this.

price for it rather than not to have it or rather than to have less of it, that the amounts these persons are willing to purchase can only be produced by the labor of many wheat raisers, and that the prices which the consuming purchasers are willing to pay are such as will make many persons willing to engage in (and devote their land to) wheat production. On the other hand, to say that apples are not greatly desired is to say that, unless the price is very low, there are few persons who want any or that those who want them want but small amounts, or both. It follows that large amounts can not be sold at a remunerative price and that the price consumers will pay is only high enough to keep a comparatively few producers (and few acres) in apple production, and is not high enough to tempt larger numbers into it. Of course if the apple growers do not receive almost as much for their work as the wheat raisers they may not consent, even in small numbers, to continue their occupation very long. But it is entirely possible that there will be a few who will like the work well enough to remain in it even if their return is very slightly less than it might be in the other line of production. There will be some, also, who, while earning, perhaps, less than most wheat raisers, remain apple growers because they are not well adapted for wheat raising and would make even smaller returns in it. Similarly some land will be devoted to apple growing, even with a low price of apples and with consequent small returns to the owner of the land so used, because the land will produce even smaller returns if used for the production of

wheat. Furthermore, if there has been produced in the community in question a certain more or less necessary quantity of wheat, additional amounts of wheat will have so little utility that apples or other goods will be preferred. The conditions of demand and value will, therefore, encourage a larger production of wheat than of apples but not a production entirely devoted to wheat.

Thus, in a considerable community, demand and the conditions of production determine the relative amounts of different goods which are produced. Variety of consumption results both from the fact that increasing amounts of any good reduce its marginal utility so that additional amounts are less desired than other things, and also from the fact that additional amounts of any kind of goods may cost more by requiring producers and land which, except for the offering of a high price, would be devoted to another line of production.[7] And as with an isolated individual, a community labors, through the activities of its members, to produce goods up to the point where the sacrifice of production is just balanced by the satisfaction or utility or the anticipated satisfaction of consumption.

But in an organized community of the modern industrial type, carrying on economic activities with a considerable degree of specialization or

[7] The United States government has recognized this principle, during the present war, by guaranteeing to farmers a minimum price of wheat. An alternative might be government direction of occupations and investment by way of compulsion. A man might be compelled to work in some line of activity for a less return than he could get if allowed to work in some other line.

division of labor, the utility of any goods consumed, *to the consumer,* is not necessarily or even probably just equal to the disutility of producing them, *to the producer.* For in such a community each person engaged in productive activity produces goods or services which others enjoy.[8] The labor sacrifice of the producers of hats may or may not—probably will not—be the exact equivalent of the enjoyment or anticipated enjoyment of the wearers of the hats. Thus, the hats in question may be of the variety affected by the well-to-do for formal evening wear, and may be, therefore, far removed from the list of necessities. The utility of or the satisfaction yielded by these hats may be comparatively slight, but they are purchased because, to their purchasers, the utility of money is also comparatively slight. Yet the disutility of the last hour's work in making them, to the producers of the hats, may be considerable, far more than would be compensated by the enjoyment of such a luxury. These producers may be, for the most part, comparatively poor, so that the payment for the last hour of their labor represents necessities rather than luxuries. The necessities so purchased by them, although worth no more in the market than the hats which they have produced, have to these hat makers a utility corresponding to the labor sacrifice which they have to undergo in earning the necessities. Their necessities have, that is, a utility to them equal to the disutility of producing the hats. But the hats have not, to them, any such utility.

[8] Cf. J. B. Clark, *Distribution of Wealth,* New York (Macmillan), 1899, p. 390.

On the other hand, the wearers of the hats may be engaged in producing (or capital which their earlier efforts and saving have enabled them to accumulate may be instrumental in producing) the very articles of necessity which the hat producers consume. The utility of these articles, or services, to those who consume them may therefore be much greater than the disutility (of labor or waiting[9] or both) required for their production by the classes engaged in producing them.[10] In modern industrial society, then, there is a rough correspondence between the utility of the goods which a man buys with the proceeds of his last hour of work, and the disutility of the work. But we cannot, in such a society with its division of labor, its strata of wealthy and poorer classes, and its differences of individual energy and taste, assert any very marked correspondence between the utility of goods to a consumer and the disutility of labor or labor and waiting undergone by a producer.

§ 4

Demand and Supply in Relation to Price

The division of labor characteristic of modern society means that different persons produce different things for a market, that we specialize in

[9] See Chapter III, §5, for a brief discussion of whether waiting involves a disutility in the sense of pain-cost.

[10] We are here assuming that all the classes under discussion and enjoying incomes, contribute something to production. Nevertheless, there are classes, as we shall later see, which reap where they have not sown.

production and then trade to get what as individuals or family groups we want. The problem of value in such a society is the problem of explaining what factors determine the ratios of exchange between different kinds of goods. The explanation of the problem begins with a study of demand and supply. The price of any article is determined, by the competitive forces of business, at that point which equalizes demand and supply. As has been frequently pointed out, demand must be distinguished from mere desire and supply must be distinguished from stock. There may be many persons who desire automobiles, but whose desires are of no significance economically because not backed by any financial ability to purchase. Demand implies ability to buy as well as desire to buy. Furthermore, since the amount which would be purchased by buyers depends partly on price, demand should be stated in relation to some price. We should therefore say, in defining demand: the demand for any kind of goods, e. g. cotton cloth, at any given price (per yard) is the amount (number of yards) of those goods which purchasers would take at that price.

It is a generally recognized fact that demand is greater, other things equal, when price is lower, and that demand is less when price is higher.[11] Assuming other things equal, we can suppose a complete schedule of demands, corresponding to all possible prices. All but one of these demands are

[11] The case of goods purchased for display is probably not an exception since, first, a reduction of price simply means that the same display requires a larger purchase and, second, a reduction of price may make possible some display by a lower economic group.

hypothetical, since they correspond to prices that do not exist. They are, in each case, what the demand *would* be *if* the price of the goods were thus and so. The demand corresponding to the actual price, represents an actual demand. But the other demands, especially those corresponding to prices near the actual price, are important, because they stand for forces of competition which help to determine actual price. *If* the price *should* go lower, demand would increase and might exceed supply, thus bringing price back again to the point of equilibrium. We must, therefore, recognize a series of potential demands corresponding to a series of hypothetical prices; yet we must, also, recognize that the actual demand for any article is the one which goes with the actual price or prices of that article during the period in question.

Supply, also, needs to be carefully defined. The total stock, say of cotton, in existence at any time, is not the supply in the sense here used. Supply, like demand, should be spoken of in connection with price. The supply of any kind of goods, at any given price, is the amount which sellers would dispose of at that price. At a higher price, more persons would be encouraged to produce the goods for sale, and those already producing them would be inclined to produce more. At a lower price there would be less encouragement to the production of the goods. Even if we are dealing only with temporary or short-run supply, e. g. the supply of corn in April, so that a rise of prices could not for several months increase the amount *produced*, it might still be true that a higher price would

tend towards a greater supply and vice versa. For at a price much below normal, many who otherwise might sell their corn, would be inclined to hold it in the hope of a higher future price. As in the case of demand, we may have a supply schedule with a supply corresponding to each assumed price; and each such supply is hypothetical except the supply which corresponds to the actual price. But the hypothetical supplies are not to be ignored since consideration of them enables us better to understand the nature of the competitive conditions by which price is fixed.

Both demand and supply operate only during a period of time. This period of time may be longer or shorter according as the problem which interests us is long-run or short-run price. If we are considering the determination of so-called market price, our concern is with demand and supply during a brief period, e. g. a week, a day, or an hour. If we are considering the determination of seasonal price, say of corn or cotton, our concern is with demand and supply between one harvest and the next. If we are considering, for a certain manufactured good, the determination of the price corresponding in some degree to the seasonal price of an agricultural product, our concern is with demand and supply of this good during a period so short that additional plants for the manufacture of the good could not be constructed and so short that existing factories and machinery would not wear out.[12] During such a

[12] Cf. Taussig, *Principles of Economics,* second edition, New York (Macmillan), 1915, Vol. I, pp. 149, 150.

period the good in question might be continuously produced, but the amount produced could not much exceed, though it might fall short of, the normal capacity of the plants. Finally, if we are considering long-run or normal price, our concern is with demand and supply over a longer period involving a number of seasons or, in the case of a manufactured good produced with large plant, involving a sufficient number of years so that the cost of construction of plants becomes an important influence on the supply of the articles produced by such plants.

It has been said above that the higher the price of a good, the larger (other things equal) will be the amount supplied, and the less will be the amount demanded. A high price, therefore, seems to be associated with a large supply and a low price with a large demand. This may appear to be contrary to the commonly accepted notion that high price means shortage of supply, or unusually large demand, or both. Yet in truth there is no inconsistency in the statement of these apparently opposite relationships. The phenomena in question involve an interaction of cause and effect. The prospect of being able to receive a high price for goods certainly stimulates the production of those goods. Yet a large production tends to force down the price. So, also, in the case of demand, it is certainly true that low prices of goods encourage purchases, and it is likewise true that large purchases tend to make prices high.

Our present task is to examine the exact way in which the forces on the demand and on the supply side of the market operate to determine price. The

price of any kind of goods tends always to be fixed at that point where demand and supply are equal. To demonstrate this tendency, let us assume prices at which demand and supply are not equal and show that such prices involve unstable equilibrium and hence can not continue. We may suppose that, in a given market, a price of 8 cents a pound for cotton would equalize demand and supply and that, at such a price, both the demand and the supply would be 10,000,000 pounds. At 7 cents, the demand would be greater, say for 11,000,000 pounds, while the supply would be less, perhaps 9,000,000 pounds. Why, nevertheless, might not 7 cents be the resulting price? The answer is to be found, not in a mere statement that demand then would exceed supply, but in an analysis of the conditions and forces of the market, for which the terms demand and supply are merely our mode of expression. Since, at a price of 7 cents, there are prospective buyers whose total purchases would aggregate 11,000,000 pounds, while, at that price, only 9,000,000 pounds would be forthcoming, not all of the prospective buyers willing to purchase at 7 cents, could get the desired amounts of cotton. Many of them would bid more than 7 cents rather than not get the cotton wanted and this bidding would force the price up. Any price lower than 8 cents would leave a preponderance of force on the demand side of the market, and would involve a further competitive bidding up of price. But we could not expect to have a bidding up of the price beyond 8 cents. For at 8 cents the supply is equal to the demand. In other words, all those who are willing to pay 8 cents a

pound can get all the cotton which, at that price, they are willing to buy. No one of them has occasion to offer a higher price to insure his getting the desired amount of cotton. If any one of them, for any reason, chooses to offer and pay a higher price, other purchasers need not do so. For, by hypothesis, the supply at 8 cents a pound is enough to satisfy the demand. Hence, even after the purchases of any who for any reason pay more are completed, there will still be enough purchasable at 8 cents to satisfy the remainder of the demand. We see, then, that the conditions and forces of a market will not permit the continuance of a price below that which equalizes demand and supply, but that there is no reason why intending purchasers should pay more than this equalizing price.

Let us now suppose a price above that which equalizes demand and supply, in order to see clearly that such a price, also, could not continue. At a price of (say) 9 cents a pound, the demand for cotton might aggregate not over 8,000,000 pounds; while the supply would be more than at a price of 8 cents and might aggregate 11,000,000 pounds. Obviously, the 11,000,000 pounds which sellers might be willing to supply at a price of 9 cents a pound, could not be entirely disposed of at a price of 9 cents. Unless the price falls, some who are willing to sell for less than 9 cents rather than not sell, will be left with cotton on their hands. These will bid against each other in order to dispose of their cotton, and this bidding will lower the price to 8 cents. But it will not lower the price more than that, for all those who are

willing to sell at 8 cents a pound can find purchasers. Should any sellers choose, for some unaccountable reason, to dispose of their cotton at a lower price, nevertheless others would not have to do likewise; for the cotton supplied by these others at 8 cents a pound would be necessary to satisfy the demand and would, therefore, at this price, be purchased. We conclude that price is fixed, by market conditions, at a point such as to equalize demand and supply, since for price to be fixed at any other point involves a condition of unstable equilibrium.

§ 5

Explanations and Qualifications

It is frequently stated that, assuming perfect competition, there can be but one price for a given kind of goods, in any market and at any one time. Thus, some men would not be selling cotton in a market at 7 cents a pound at the same time that others were selling for 8 cents. For, if the dealers asking 7 cents could completely satisfy the demand, those asking 8 cents would make no sales; while if those selling at 7 cents could *not* completely satisfy the demand, they would soon realize that a higher price could be asked. By a similar line of reasoning we may conclude that, if some purchasers were paying 8 cents and others only 7 cents, those having cotton to sell would sell it by preference to the former. If the purchasers at 8 cents could take the entire supply, those willing to pay but 7 cents would get no cotton, while, if the purchasers at 8 cents could *not*

take the entire supply, they would soon realize that they could get what cotton they wanted without offering so high a price.

When it is said, then, that perfect competition makes impossible more than one price for any kind of goods in a given market at any given time, perfect competition must be understood to mean complete knowledge on the part of all the buyers and sellers, of conditions throughout the market, a readiness on the part of each buyer to buy where he can buy most cheaply, and a corresponding endeavor on the part of each seller to sell to whoever will pay the most. So far as knowledge is incomplete, or so far as buyers and sellers are actuated by motives not purely economic (e. g. by the motive of friendship), there is the possibility of two or more prices existing side by side in the same market. On the exchanges, where goods are bought and sold in such large quantities as to make the effort for complete information clearly worth while, there is seldom any great difference in price among different transactions in any one kind of goods, taking place at the same time. In retail trade, where the purchases of any individual from day to day are so small that it sometimes seems scarcely worth the trouble to investigate slight differences in price or to go much farther than the nearest store, differences in price are more likely to arise or to persist.

Besides the possibility—and, in some cases, probability—of differences in the price of a kind of goods at any given time, there is also to be considered the likelihood—almost the certainty—that price will fluctuate from month to month, from

week to week, from day to day, even from moment to moment. But some length of time is required for the carrying out of any transactions whatever. Demand and supply, therefore, almost necessarily have reference to a period of time rather than to an instant.[18] It follows that, except as we imagine a period of time infinitesimally brief, we cannot say with complete accuracy that demand and supply are equalized by any one price. Demand for and supply of wheat, during a year, are equalized by a series of changing prices from day to day during the year, or by an average price. Either the *seasonal* price, or the long run or *normal* price is, then, an average of prices, an average of a series of prices differing somewhat from each other. Even the *market* price has reference rather to a very short period than to a point of time.

It is often said, in explanation of a rise in the price of some commodity, that the demand for it has increased or that the supply has decreased; and in explanation of a fall in price it is commonly stated that the demand has decreased or the supply increased. Obviously, an increased demand, say for cotton, which raises its price, is different from an increased demand which merely results from a fall of price. When we say that an increase of demand has raised the price of cotton, we mean that the potential demand at each possible price is

[18] Though we might define them as the amounts which, *at any given instant,* persons *stand ready* to buy and sell *during* some *period.* This would not help us any and would, indeed, be subject to the objection that what buyers and sellers, at any given moment, think they will do if prices remain unchanged, may not be at all what, even if prices so remained, they actually would do.

greater than previously at the same price. In other words, the whole demand schedule has shifted.[14] Population may have increased or new uses may have been discovered for cotton or tastes and styles may have changed, so that cotton goods are more desired than formerly. Unless, therefore, price is higher, demand will exceed supply, buyers will bid against each other, and price will have to rise.

Likewise, if it is said that the price of cotton rises because of a decreased supply, this must be held to mean, not that there is a decreased supply consequent on a lower price, but that there is, at each assumed price, a less potential supply than formerly would have been forthcoming at that price. This fact might be the result of soil exhaustion or of a possibility of using land more profitably for some other crop or (as for a single season) of destruction of part of the crop by the boll weevil. In any of these cases demand, at the former price, would exceed supply, and, therefore, a higher price must result.

Consider now the conditions which make for a fall in price. The increase of supply which may cause such a fall is not the increase which results from a larger demand and a higher price, but is an increase of supply due to other conditions than a rise of price. It may be due to improved methods of cultivation or (as for a single season) to exceptionally favorable weather conditions. Unless the price falls, there will then be an excess of

[14] See Fisher, *Elementary Principles of Economics,* New York (Macmillan), 1912, pp. 268-273.

supply over demand. Sellers of the cotton therefore bid against each other in price reduction, causing the price to be fixed at a point such that the demand will be equal to the now larger supply.

But price may be lowered, also, through a decreased demand. This decreased demand must be supposed to be a demand smaller at each price and not a smaller demand consequent merely on a higher price. It may result from change of taste or style or from inability of part of the buyers, owing to changed conditions diminishing their prosperity, to make their desires effective in demand. In any such case only a lower price can equalize demand and supply.

The case of monopoly price is not altogether exceptional. Monopoly price, also, is fixed where demand and supply are equal. But the monopolist controls the supply of his product and can therefore ordinarily fix his price so as to secure a larger net profit than would be possible if competition had to be met. But if, in any industry, monopoly seems inevitable or socially preferable, government may regulate the price or prices in question. Such regulation, if effective, will remove the motive to limitation of supply. The regulated monopoly will rather prefer to extend its business, as the only way of making a considerable profit. To regulate any price to a lower point than gives a normal *competitive* return to the factors engaged in the production of the good will cause these factors to be shifted, in part, to other lines of production.[15]

[15] Of course this does not mean that when the government, under its war power, limits a grocer's charge for sugar, the grocer will change his business. Even if the limitation were known to be for

If such a law is not evaded, it can only be because its penalties or other causes bring about an appreciable curtailment of demand for the good the price of which is regulated. But to regulate monopoly price down to a level of competitive profits, will tend rather to increase supply than to decrease it.

§ 6

Speculation in Relation to Price

It has been above pointed out[16] that the price of any kind of goods may fluctuate from week to week or from month to month. This fluctuation is, however, limited in extent by the activities of speculators, at least when speculation is intelligently carrried on. We might be inclined to expect that the price of (say) wheat would be very low immediately after harvest, because of the large quantity suddenly thrown on the market, that this lowness of price would discourage its production, and that its scarcity, realized particularly when

a long period, he might yet remain in the business because expecting a substantial profit from his sales of other groceries. Nor is there any intention to deny that, by means of regulation, priorities, appeals and otherwise, government may decrease the consumption of and the demand for many goods by civilians in war time, thus in effect compelling them to lend it their funds for its purposes, for lack of the customary alternative. But if government expends these funds there is not likely to be a reduction in average prices. (See §7 of this Chapter). Permanently to regulate everyone's consumption of goods of every kind (assuming such regulation to be possible) would amount to doing away with the competitive money system, for few would bother to acquire funds which they might not expend.

[16] In the immediately preceding section (§5) of this Chapter.

each season's stock was nearly gone, would cause its price then to be very high. But speculators see chances to make profit from such differences of price. They, therefore, buy up the wheat in the fall, when its price is low, and hold it for sale at a time when a greater relative need makes its price higher. The large purchases in the fall tend to keep the price of wheat from going as low as it otherwise might, and the holding of a considerable stock into the spring for sale then, tends to prevent so great a rise as might otherwise occur. Speculative holding, in other words, increases the demand when price is low and increases the supply when price is high. The difference between the low and high prices will therefore, perhaps, on the average, about pay for the skill, trouble and capital furnished by the speculator. It is doubtless true that, in the absence of a speculating class, many farmers would themselves be inclined to hold their wheat till the season of highest price, but many others find this inconvenient and risky. The existence of a class of speculative buyers enables the farmers to sell at once for somewhere near the later and (on the average) higher price, and to avoid risk of loss. It is likely, therefore, to encourage wheat production and thus to tend towards a reasonably low average price to the public. Purchase in the fall and holding by millers might, of course, serve in considerable degree the same purpose. But this would compel millers to be speculators and to invest large capital in the storage of wheat, and it is not certain that they would perform these services as cheaply as specialists.

Consider now another type of speculation. The speculator who "sells short" really promises to sell at a fixed future date and at an agreed price, goods which he does not possess at the time of making the promise. The buyer, of course, undertakes, on his part, to purchase the goods in question on the agreed date and at the agreed price. He is said to buy a "future." The buyer may be a manufacturer or a dealer to whom it is important that he shall know in advance just what certain supplies will cost when he is ready for them. He wishes to avoid any risk of fluctuation in the prices of these supplies. The speculator assumes this risk for him. Thus, a speculator may agree, in April, to sell wheat in June at $1.90 a bushel. The speculator should be an expert in predicting, so that to him the risk from possible fluctuations is less than it would be to others.[17] But even to the specialist there is some element of risk. The market price when June arrives may be $1.95. In that case the speculator is obliged to buy for $1.95 a bushel the wheat which he has agreed to sell for $1.90,[18] and loses $0.05 on each bushel. If the price turns out to be $1.87, however, he gains $0.03 on each bushel delivered. The fact that there are experts

[17] As Fisher has well pointed out, risk is fundamentally a matter of ignorance. Events occur only when their causes occur; and if we could know all the relations of cause and effect even in their most intricate ramifications and make ourselves familiar with existing conditions, we could predict all events with certainty. Our uncertainty is due to no inconsistency of Nature but to an ignorance of Nature that makes consistency sometimes appear to us like inconsistency. See Fisher, *The Nature of Capital and Income,* New York (Macmillan), 1906, pp. 265-269.

[18] Or pay 5c a bushel to the man with whom he made the contract.

who will promise, in advance, to sell at an agreed price, probably has some tendency to equalize prices. For if scarcity is feared, each intending purchaser (e.g. miller) would be likely to buy in advance and hold for his own future use a stock much larger than would satisfy his immediate needs. Such panic buying might make supply seem relatively short (say of wheat in the spring) and cause prices to rise unduly. But instead of thus purchasing in advance a large stock of the goods they desire, prospective users can arrange with speculators to be supplied with the desired goods as these goods are needed.

It is, of course, the intelligent speculation of experts which thus tends over a period of considerable length to equalize prices. So far as the untrained public are lured into speculative use of funds by the prospect of large chance gains, the effect of their speculation is quite as likely to be greater price fluctuations as less. For the untrained public are not unlikely to buy when prices are high, and to sell in a panic when prices are low thus causing them to go still lower. In short selling, also, they are as likely as not to make corresponding errors of judgment.

§ 7

The Determination of the General Level of Prices

Let us now apply the principles of demand and supply to the general level of prices. We shall see that much the same kinds of competitive forces which fix any one price (as above explained) in relation to other prices, fix the general level of

prices of goods in terms of money. We shall consider the supply of goods, including the services of labor and of "waiting" (i. e. investing, or putting capital into use, the service for which interest is paid) offered for money, and the demand for goods by those having money to spend.

Where there is only fiat (inconvertible paper) money, the supply of goods in general, offered for money, at any level of average prices of those goods, would be just the same as at any other level of prices. This is very nearly true no matter what the money system.[19] If wheat prices are higher than corn prices, or *vice versa*, productive effort may be diverted from one line into another. But we are now not discussing changes in individual or relative prices. We are discussing only changes in the general level of prices, the average of prices. If the general level of prices should double, there is no reason to believe that the amount of goods produced for sale would on that account greatly increase. Supposing a community to be in reasonable prosperity and business activity at the lower prices, an increase of these prices would not make possible a very greatly increased production. It would not enable men to work longer hours nor would it make machinery more efficient. Neither would it stimulate the sales of goods by making such sales more profitable, since a general rise of prices simply means that money has a less value. If everything should sell for twice as much money as before, the sellers would gain nothing, for the

[19] See remainder of this section for explanation of why it is not always entirely true.

things they desire to buy would also cost twice as much. Looking at the matter from any reasonable point of view, it must be admitted that the supply of goods in general, at a higher level of prices, would be no greater (or but slightly greater)[20] than at a lower level. Likewise, at a lower level of prices, the supply of goods would be no less than at a higher one. A lower level of prices would not mean less activity or a smaller sale of goods. It would pay as well to sell goods at a low level of prices as at a high level, since at the lower level the money received would have correspondingly greater purchasing power.

The lower level of prices would only decrease the supply of other goods and the higher level increase it, in one contingency, and then only to a very limited degree. When the currency system is based on a precious metal, e. g. gold, a lower level of prices means a higher value of gold as money. It might therefore divert some labor from the production of other goods to the production of gold for coinage. A higher level of prices might tend, in the same degree, to divert labor from gold production towards the production of other goods. To this extent only, a higher level of prices would tend to increase the supply of goods in general other than money, and a lower level of prices to decrease it.

On the other hand, a higher level of prices of goods would tend to decrease the demand for goods by persons having money to spend. For with higher prices, and no greater amount of money to

[20] See next paragraph.

spend, buyers of goods would be unable to purchase as much as at lower prices. Lower prices of goods would mean that the money of purchasers would go farther.

Let us now suppose a doubling of the amount of money. Prices would tend to increase in nearly the same proportion. Suppose prices did not rise. Then purchasers of goods would buy all they were in the habit of buying and still have as much money left to spend as they formerly spent all together. This they would endeavor to spend at once. For in modern countries money is not hoarded away, but only enough is kept on hand for emergency requirements, and the rest is spent. Those who save are spending just as effectually as any others. The difference is in what they buy. Those who save buy factories, warehouses, railroads, farms, etc. Even though their savings are put into a savings bank, they are none the less spent for investment goods. It follows that a sudden doubling of the amount of money, if prices did not increase, would mean a demand for goods far exceeding the supply. The amount of land is practically constant. Doubling the amount of money would not enable people to work longer hours and so increase the products of labor. In a busy community the supply of goods to be sold simply *could not* be doubled except with an increase of population or invention. The increased money would therefore mean that at the old prices the demand for goods in general would exceed the supply. Purchasers would bid against each other. Prices would rise. Equilibrium would only be reached, supply and demand be

equal, at a general level of prices nearly (or, if fiat money, quite) twice that which had preceded.[21]

[21] The quantity theory of money has recently been attacked by Professor B. M. Anderson, Jr., in his book on *The Value of Money* (New York—Macmillan—,1917. We may profitably digress, perhaps, long enough to consider the bearing of three of his hypothetical illustrative cases. In the first (pp. 150, 151), Professor Anderson supposes a paper money convertible not in gold but in varying quantities of silver such that the amount of silver receivable for a unit of the paper is always the equivalent of a definite weight in gold. Under these circumstances, he asserts: "The causation as between quantity of money and value of money would be exactly the reverse of that asserted by the quantity theory. A high value of money would mean lower prices. With lower prices, less money would be needed to carry on the business of the country. Paper would then be super-abundant. But in that case, paper would rapidly be sent in for redemption and the quantity of money would be reduced." But is it not true that the paper money will not be presented for redemption? On the contrary, the conditions assumed by Professor Anderson are precisely those which would prevent the sending in of the paper money for redemption. If prices are indeed lower, those who possess this money have a more urgent motive than before to expend it while it will buy much, rather than to have it redeemed. The paper money will not be presented for redemption so long as it is worth more in goods than is the silver in which it is redeemable. And if and when it is presented for redemption, this will be *the result of a diminished purchasing power consequent on its redundancy*. In other words, we find here an influence of the quantity of money on the prices of goods.

In the second hypothetical case which we shall examine (pp. 296-299), Professor Anderson supposes an island the people of which are chiefly engaged in producing a single crop and to which comes by wire the news of a partial failure of the same crop in another part of the world. The island crop, Professor Anderson says, will rise in price and so will other goods in the island, which the prospectively prosperous planters now begin to buy. All this may be true but it furnishes no convincing refutation of the quantity theory of money, a theory which definitely asserts that both the quantity of money *and* the price level in a limited territory are largely determined by prices outside of that territory. If, on the island, prices

In a country which has a gold standard monetary system prices are largely dependent upon the amount of gold mined and hence upon the number and richness of gold mines.

If prices rose equally, this would mean a doubling in the money wages of labor for the same results produced and, similarly, a doubling in the

rise *before money flows in*, this can be true only to the extent that the now potentially more valuable crop is held for higher prices and hence trade is decreased, or by virtue of increased rapidity of money circulation or, most importantly perhaps, by the ability of the banks, in anticipation of crop sales at a higher price, to expand circulating credit (*if reserves will permit*) somewhat farther than usual. The quantity theory of money, properly interpreted, does not assume money to act on prices in any other way than *through the market and through human motives and calculations.*

In the third case (pp. 309, 310), Professor Anderson argues that reduction of some prices, if quantity of money and volume of trade remain the same, may not raise other prices but may leave a lower average of prices than before. He supposes that maid-servants who were receiving $20 a month have their wages lowered to $10 by a combination of employers and, having no better alternatives, continue to act as servants. He then proceeds to contend that although the employers have $10 more each to spend per month, the servants have each $10 less, that these changes just offset each other and that, therefore, prices will not change except for the fall of wages, the net effect being an average reduction. The $10, according to Professor Anderson, is simply "short-circuited." The fallacy lies in the assumption that this $10 is expended only once, e. g. by employer to retail shoe dealer, *in the same period of time* during which it would formerly have been expended twice, e. g. by employer to servant and by servant to shoe dealer. Why not assume that, if the servant fails to connect with the $10, it goes from the employer to the retail shoe dealer and from the shoe dealer to the clothier? On the latter assumption, the fall of servants' wages, with volume of money and credit and volume of trade unchanged, certainly *would* mean a rise in some other price or prices. Professor Anderson has arbitrarily interpolated a decreased velocity of circulation of money.

money interest received for "waiting." Aside from disturbing effects during the period of transition, the *rate* of interest would be the same with the high prices as with the low. The money value of the sum waited for would be doubled and the money value of the interest would be doubled. The ratio between them would be the same as before. In other words, since prices have doubled, borrowers, for example, would require twice as many dollars as before and would also, of course, pay twice as many dollars in interest.

In the light of the principles above set forth, regarding supply and demand, we can explain why the excessive amounts of inconvertible paper money sometimes issued by governments, issued particularly in time of war, have resulted in very exceptional rises in the price level. This increased amount of money means, at any level of prices, a greater demand for goods. Therefore, that the demand for goods may not exceed the supply, the level of prices must rise. There is another factor of importance at such times, viz., public confidence in the money issued. If there is a general belief that the money will become absolutely valueless or greatly decrease in value, then many who have goods to sell will refuse to sell them for this money, but will demand gold or silver or other goods in exchange. This decrease in the supply of goods, offered for money, will mean that only a higher level of prices than otherwise would result can equalize supply and demand. Thus is to be explained the high prices (and, reciprocally, the great depreciation of money) in such periods as the American Revolution, the Civil War, etc.

§ 8

The Relation of Commercial Banking to the General Level of Prices

Credit instruments, or credit rights—for the paper is in each case but evidence of the underlying obligation—act as substitutes for money primarily through the intermediation of commercial banking,[22] and foreign exchange banking. Commercial banks constitute an important part of the mechanism of trade. Their work facilitates internal trade and, in connection with the work of foreign exchange banks and brokers, facilitates external trade as well. It is estimated that nine-tenths of the total business in the United States is carried on through the use of bank credit.[23]

Bank deposits (rights to draw from a bank or banks), which circulate by means of checks, may come into being in any one of several ways. One may become a depositor by directly depositing money (or the right to draw money, received by check from some one else, but this merely registers a transfer of a deposit and does not create one). One may become a depositor by borrowing from the bank in which the deposit is to be. If A goes to his bank and leaves there $50,000 cash, he thereupon is said to have deposited such an amount in the bank and can draw on this sum at will by

[22] Savings banks and investment banks perform, of course, important functions, but do not have a part in providing a substitute for money.

[23] See Fisher, *The Purchasing Power of Money*, New York (Macmillan), 1911, pp. 317, 318.

issuing checks against it in favor of any persons to whom he wishes to make payments. But A may also go to the same bank, give his endorsed note or other satisfactory security, and borrow $50,000. This money he leaves on deposit. The bank is then said to lend its credit. What A has borrowed is not money but the right to draw money by check, at will. The bank is under as much obligation to redeem his checks on demand as if he had directly put money into the bank. On the other hand, A is under obligation to pay the bank, when his note matures, the amount borrowed plus interest. Finally, one may also become a depositor by endorsing to his bank a note or draft payable by a third party who then is the real borrower.

It should be readily apparent that a bank can, in ordinary times, redeem all checks presented for redemption, without keeping for that purpose a cash reserve which at all nearly equals its liabilities. The total value of deposits which a bank is under obligation to pay out on demand, may be $500,000. Yet it is certain that all the depositors will not call for their money at the same time. Instead of drawing it out, most of them send checks back and forth to and from others who do likewise. A cash reserve of $100,000 may be ample. Putting the matter in the opposite way, we may assert that if there is $100,000 in cash in such a bank, the bank can lend its credit, i. e. more deposits or rights to draw, to the extent of (say) $400,000.

We have said that different depositors in a bank liquidate their obligations to each other by giving checks. There is, then, simply a change on the bank's books. Any amount of obligations can be

thus balanced. Different persons are made successively creditors of the bank for larger or smaller sums. The situation is complicated, but the principle is not changed, when depositors of different banks have business dealings with each other. In this case, which is a decidedly usual one, the banks become successively each other's debtors and creditors and have to settle through a clearing house. Bank A may have accepted and paid cash for, or credited to depositors, many checks on Bank B. Bank B therefore owes Bank A. Similarly, Bank C may owe Bank B, etc. All of these complicated obligations are balanced by a clearing house, so that each bank pays what it owes net or receives what is owed to it net, and a great deal of flow of money is avoided. In other words, the principle of cancellation is applied whenever possible between banks, just as it is in any one bank to the depositors in it.

The general level of prices is somewhat higher and the value of money is somewhat lower, because of the additional use of credit. The conditions of supply and demand require a somewhat higher level of prices, just as we have seen that they do when there is more money. Gold is cheaper. The demand for it is less. It does not need to be produced, and cannot profitably be produced, at such a low margin, i. e. from such unfavorable sources of supply, as would otherwise be worth while. But this bank credit is not altogether an *addition* to currency; it decreases the amount of gold money, and so is largely a *substitution* of a cheaper for a dearer currency.

But if bank credit can thus take the place of money, is there any limit to such substitution? Why might not credit expand and prices rise, or money be pushed out, indefinitely? The answer is that the amount of bank credit is pretty definitely related to the amount of money. In the first place, a certain amount of cash is needed in the banks, to maintain confidence. The amount so needed bears a relation to the amount of bank credit, and must be some reasonable per cent of such credit. Otherwise, the public is likely to become frightened and demand cash, and this cash cannot be paid. A margin against such contingencies is always essential and, for national banks of the United States and Federal reserve banks, as well as frequently for State banks, is required by law. So the total bank credit is related to the total bank reserves or cash in the banks.[24] Banks maintain the proper relation between deposits and reserves, by adjusting their rates of interest (or discount) charged to borrowers. If the deposits are in danger of becoming too great, relative to the reserves, a higher charge to borrowers will discourage borrowing, and so will limit the increase of those deposits which originate in the borrowing of deposit rights (or in the discounting of notes and acceptances).

The total bank credit is related, also, to the total cash in circulation.[25] Bank deposits passed by means of checks are absolutely unavailable for

[24] White, *Money and Banking*, third edition, Boston (Ginn), 1908, p. 197. The reserves required of national banks now have to be kept as deposits in the Federal reserve banks.

[25] Fisher, *The Purchasing Power of Money*, p. 50.

very many transactions. They are unavailable when the maker of a check is unknown, and they are unavailable, practically, for small payments, such as street car fares. Even bank notes cannot fill up the entire circulation when, as is usually the case, the government allows them to be issued only in relatively large denominations. The smaller denominations are needed and government money is used. Business convenience, then, also compels a relationship between the quantity of bank credit and the quantity of government money.

Since the quantity of bank credit is related in these two ways to the quantity of government coined and government issued money, changes in the latter tend to bring proportionate changes in the former. It is still true that prices depend upon the quantity of money, though the dependence is in part indirect. The demand for goods comes from those who have bank credit to offer as well as from those who have only money.

§ 9

Summary

We began our study of value by assuming the simplest possible situation in which the principal value-determining forces might work, viz. a place inhabited by a single isolated man. Though in such a situation no exchanges are possible and, therefore, no value, in the sense of power in exchange, is possible, there may nevertheless be comparisons of utility. Such an isolated man may choose to produce one thing instead of another because its utility is greater to him than the

utility of the other, in relation to the time and intensity of labor necessary to produce it. It is likewise true for a person so situated, as for a person in a modern community, that a given unit of any good has less utility according as he possesses many units. If one kind of good has, because he possesses little of it, greater utility to him than another, and is yet no harder to produce, he will devote his attention to producing it instead of the other until the relative utilities are as the relative sacrifices or costs of its production. But this adjustment may be reached either because the utility of the desired good becomes less as more of it is possessed, or because the labor of producing it becomes greater in proportion when more is wanted, or for both reasons. Some wants will eventually remain unsatisfied because they are not important enough to warrant the sacrifices of production, sacrifices which are likely to grow greater in proportion to the results obtained, as more hours per day are devoted to labor.

In a modern community, the relatively large production of the most desired goods is brought about through the influence of desire upon demand and of demand upon the profitableness of supplying these goods. The principle of diminishing utility still applies and each purchaser buys goods desired by him only up to the point where the last unit purchased has a utility equal to the utility of the money which must be paid for it, which will be equal to the utility of the most desired alternative purchase that might have been made with the money. The goods which are generally so desired in quantity that the average purchaser buys much

before their utility becomes as low as the price, are goods which, therefore, it pays to produce in large amounts. Many persons and much land and capital are devoted to producing these goods. In a general way, we can state that producers carry on productive effort up to the point where its discomfort, weariness or disutility balances the satisfaction or utility which is the reward of that effort. But we cannot say that the disutility of productive effort, to the producer, equals the utility of the goods produced, to the consumer.

A modern community is made up of specializing units; specialization requires exchange; and exchange involves a rate or rates of exchange. In other words, exchange involves demand and supply. It is the forces of the market which fix the price of any good at the point where demand and supply are equal. At a lower price, demand would exceed supply and buyers would bid against each other, so raising the price. At a higher price, supply would exceed demand and sellers would bid against each other in order to dispose of the goods. Demand, supply and price have reference to a period of time which may be shorter or longer according as we are concerned with market, seasonal or normal price.

Speculative buying and holding for a rise tends to keep up the prices of agricultural products when they first come upon the market and to prevent scarcity and high prices later. The selling of "futures" also tends towards equalization of prices. But speculation by persons inexpert in it may tend to increase price fluctuations instead of to diminish them.

The general average of prices or price level is also determined by demand and supply and largely resolves itself into a relation between the volume of purchasing power in the form of money and bank deposit (checking) accounts on the one hand and the volume of trade on the other hand.

CHAPTER II

Ultimate Determinants of Value

§ 1

Supply of One Good Means Demand for Other Goods

If our explanation of the determination of value is to approximate completeness, we must not stop with an analysis of the nature of demand and supply, but must bring into view the forces which lie back of each. We shall begin with demand. It was said in the last chapter that desire is not demand. Nevertheless, desire is related to demand as (part) cause to effect. Demand depends upon desire for goods coupled with ability to pay for them. Other things equal, the greater the desire for any goods, the greater the demand for them. The desire of an isolated man for goods of any kind, expresses itself in his efforts to produce these goods. But where, as in a modern community, there is division of labor, each member of the community specializing in some one line, demand for any good on the part of producers of other things, expresses itself in their production of these other things for a market, in order that they may have the means to purchase what they desire. In effect, though the use of money intervenes, they buy the goods they desire with the goods they produce. If the farmer desires a piano, an automobile, good furniture and various other things, he works longer hours or more intensively and produces more wheat, cotton, corn or beef.

Thus the goods of one kind, which he *supplies*, express and give effect to his *demand* for other goods.

It is this fact which lay back of the contention of the classical economists, that there could be no such thing as a *general* oversupply, i. e. the supply of a larger amount of all kinds of goods than could be sold. There might be, through miscalculation of producers, or other cause, an oversupply of one or a few kinds of goods compared to other goods. But this simply meant that the producers of the goods supplied in excess, say cotton, had plenty of those goods with which to purchase other goods. They had produced what, they believed, would be satisfactory means of payment for the goods desired. That is, they had intended to produce marketable goods. They had mistakenly produced too much of one thing (or a few things). But to assume that nothing they could have produced would have been acceptable to those with whom they traded, would be to assume that the latter had no wants remaining unsatisfied, for the satisfaction of which they were willing to pay. But if, in our system of division of labor, these latter, the purchasers of cotton, have produced any goods, it must be because they desire and, therefore, have a demand for, other goods, such as cotton. Though they do not desire (and, except at low prices, will not take) all of the cotton which has been too freely produced, they do desire other goods and have produced the wherewithal to pay for them. In other words, people produce goods in modern society chiefly as a means of getting other goods. Production of

goods by a person who intends to sell them establishes a strong presumption that he wants something else, that his wants are not satisfied. What he wants to buy may be factories, railroad shares, office buildings and tenements, but it is pretty certain that he wants to buy something. If he puts his money into a savings bank, the situation remains the same, for he merely makes the bank his agent. The bank invests, i. e. *buys*, for account of its depositors. *General* overproduction would mean, then, a more or less universal production of goods for sale, by persons who did *not* want other goods in exchange for the goods sold. It would mean a desire to sell goods but no corresponding desire to buy goods. Since, in general, men sell only that they may buy, such a situation as a general phenomenon is almost unthinkable. It may seem to exist temporarily, and for special reasons, during a panic and business disorganization, but it is very far from being a normal condition of economic life; nor can general oversupply, though seeming to exist during such a business breakdown because merchants and manufacturers are afraid to buy the usual amounts of goods, raw material and machinery, be put forth as a cause of the breakdown. In fact, the refusal of dealers and manufacturers to buy does cause it to appear that there is a surplus of goods, discourages manufacturers of those goods, throws men out of work, deprives these men of the means of purchasing, and so accentuates the appearance of superfluity. But the condition is one of industrial breakdown rather than of too efficient industrial

functioning.[1] Provided our economic machinery

[1] Professor Davenport says (*Economics of Enterprise,* New York—Macmillan—, 1913, p. 362) that in a time of depression "goods are offering against present money, while money is offering only against promises to pay in later goods or in later money with which presumably to command later goods. . . . The offers of present goods are not for present goods, and the offers of present money are not offers for present goods." In other words, everybody seems anxious to sell for money and relatively few seem anxious to spend money.

To this one might reply that, although it seems to picture fairly well the situation during depression, yet the difficulty is that sellers of goods, despite apparent eagerness to sell, are nevertheless asking prices higher in money than buyers are willing to give, and that a revaluation of their goods by sellers, on a lower basis, would enable them to be sold. Professor Davenport contends, to be sure (ibid, p. 303), that falling prices may not terminate the glut, since if the purchasing power of money over present goods is thus rising, "so also is rising its putative future purchasing power." But this can hardly be true without limit. At some degree of lowness of prices, purchasers of goods must realize that a better time to buy can hardly be expected to arrive. There must be a scale of prices at which, could it be generally accepted, goods would exchange freely, not reluctantly, for other goods through the medium of money. Indeed, Professor Davenport goes on to mention such considerations by way of accounting for the eventual revival from depression.

But be this as it may, assuming, for example, that all persons who have money are unwilling to spend it at any set of prices of goods, while all holders of goods are anxious to dispose of them for money on any terms, does it not still follow that all who have or produce goods for sale are demanders of other goods? In the assumed case, they are demanders of money; and this means, in effect, in a gold standard country, that they are demanders of gold. Temporarily, at least, the value of gold—or other primary-money commodity—is raised. Could such a condition continue, it would stimulate the production of gold and lead to the employment of more men to find and to work gold deposits. So far from there being an all-round oversupply of goods, we could say with truth that

works smoothly, we need not fear a superfluity of goods, and when we appear to have such superfluity, the real difficulty is to be sought elsewhere.

§ 2

Influences Back of Demand

Intensity of demand for goods shows itself, as has been above stated, in intensity of effort devoted to producing other goods with which to buy them. But intensity of demand for any one kind (or a few kinds) of goods, may show itself also in a smaller consumption of other kinds, and in using most of one's available purchasing power to buy the goods most wanted. In other words, our estimates of relative utility inevitably involve not one but two comparisons or sets of comparisons. We must compare the utility of goods desired with the cost of the goods in terms of what we produce to pay for them and, therefore, in terms of the disutility (of effort and other sacrifice) involved in producing the latter goods. We must also compare the utility of any special goods desired, with the

there was a relative undersupply of gold. Perhaps it is better, in view of the above complex of considerations, not to assert absolutely that all-round overproduction is impossible. During depression there is a condition which often seems like all-round oversupply, or practically that. And it is of too temporary a nature, perhaps, to warrant a shift of surplus labor to gold production even if that were in less degree than is the case on aleatory industry. Of course, also, where the currency is of the fiat order a temporary apparent relative undersupply of it, of the kind here in question, could not give opportunity for much employment of idle labor in producing it. But that the difficulty, in its origin, is always one of maladjustment rather than of too much production everywhere, should be clear.

utility of other goods which might be purchased instead but which, because our earning power is not unlimited, may have to be sacrificed if the special goods most wanted are bought.

To illustrate, a farmer's desire for a piano may cause him to work longer hours and cultivate his farm more intensively, in order to produce the extra amount of wheat necessary for purchasing the piano without greatly sacrificing his other needs. His sacrifice takes then the form of the extra effort required to earn the requisite money. On the other hand, his desire for the piano may, conceivably, cause him to work no harder but may induce him to give up owning an automobile. In that case, his sacrifice takes a different form, but may be regarded as none the less a sacrifice. The same principle applies to anything which one may purchase,—coal, shoes, sugar, etc.

We have already seen[2] that as a person has more and more units of any article, the utility or desirability of additional units declines. A pound of sugar, to a man who could never have but a single pound, would be highly prized. A second pound would be somewhat less desired but would yet have high utility. But to a man who regularly consumes 75 pounds of sugar a year, one pound more or less is of relative unimportance. In the case of some goods, utility would diminish rapidly as the amount owned increased. In the case of other goods, utility would diminish slowly. In any case, a person desiring the goods would purchase them up to the point where the last unit secured

[2] Chapter I, §1.

was just equal, in his mind, to the price paid. The purchaser of sugar would buy each year or each month such an amount that the last pound purchased would just about seem worth while getting at the price. The purchaser of coal would buy, each winter, such a number of tons that the last ton would just about seem worth the price paid. If the price were lower he might luxuriate in more heat. If it were much higher, he might endeavor to get along with one less heated room. The last ton purchased would just about seem to be the equivalent, in utility, of the money spent for it or (since money has utility only for what it can buy) of the other goods which could have been secured with the price of that ton but which are sacrificed in order to get the coal. This last ton, being just equal in utility to the money necessary for its purchase, would just compensate for the disutility (labor or other sacrifice) involved in earning that last addition to the year's income. This statement remains true in principle even when the assumed purchaser of goods finds labor a constant delight. For such labor still involves a sacrifice of sleep, or leisure or reflection, which may be no less or even more delightful to him. As to the person who gets all or nearly all his income from property, it can hardly be said that the last hour's work has any disutility at all. But, even so, goods may still be valued in terms of other goods foregone.[3] The last ton of coal purchased is called the marginal purchase, its utility, marginal utility, the effort or other sacri-

[3] See Davenport, *Economics of Enterprise*, p. 93.

fice necessary to earn that much more (e. g. the last and, therefore, hardest or most disagreeable hour's work, if work must be undergone) is the marginal effort or sacrifice, and its disutility is the marginal disutility. At the point where the coal purchasing stops, the marginal utility of coal is just equal to the marginal utility of money or of the goods other than coal for which the money might be spent and, if the money had to be earned, is just about equal[4] to the marginal disutility of earning that money.

We may now restate the relation of demand to price, pointing out that demand rises as price falls and that this is true partly because a fall of price induces some to be purchasers who would not buy at a high price, and partly because those who would buy at a high price will buy more if price be lower.

A further statement may be made, which has to do with both demand and supply. A great rise in the price of (say) wheat, would tend to decrease the demand for wheat by persons producing other goods to get it, partly because it would induce some to give up producing the means of purchasing wheat and to produce, instead, the wheat itself. On the other hand, a great decrease in the price of wheat (resulting, perhaps, from the invention of better harvesting machinery and from improved methods of soil enrichment[5]), would tend to in-

[4] Not necessarily exactly equal since the money may be earned at one time and spent at a later time, and since, therefore, its utility may be different from its estimated utility.

[5] These improvements, other things equal, mean that fewer are required to produce wheat, and, therefore, unless some change

crease the demand for it by causing some who had been producers of wheat, to produce other things and therewith buy wheat. Otherwise putting the matter, we may say that the amount which would be paid for wheat in terms of other goods, is roughly limited (if we have long periods and possible change of occupation, in view) to the amount of other goods which could be produced with the same (marginal) sacrifice as the wheat. A price of wheat so high that it is much more difficult to get the wheat desired, by producing other goods with which to buy it, than to produce the wheat itself, would mean a smaller demand for wheat,[6] and demand and supply would only be equalized, in the long run, by a shifting of a part of the community's producing power into

their occupation, prices will fall so far as to make wheat production relatively unprofitable. That is, prices will fall more than the improvement in methods can permanently justify.

[6] Unless we think of wheat producers as being demanders of wheat, directly or indirectly, from themselves. Considered as a group, however, the producers of wheat and wheat products are suppliers of wheat to the rest of the community. The part of the product that they themselves consume, they cannot be said (as a group) to demand, in the sense of buying it with other goods. Hence, if other producers are pushed or drawn into wheat production, because of high wheat prices, the demand for wheat may be said to be smaller. In a more detailed, and, therefore, perhaps, less philosophical sense, producers of wheat may be said to demand wheat, indirectly, if they sell their wheat and buy wheat flour. Their demand for the flour from the millers is, indirectly, a demand for wheat since it occasions demand for wheat by the millers. In this sense, the wheat producers may, often, literally buy back their own wheat. It is possible, in short, to conceive of the wheat consumed by the wheat producers themselves as entering into neither demand nor supply, or to conceive of it as entering into both.

wheat production. There is a very real sense, then, in which the demand for an article, and the amount which consumers will pay for it, depends upon its cost of production. They will not, in the long run, pay more for it than the amount of other goods which the same sacrifice will produce. Normal or long run demand may therefore be said to depend on the (marginal) utility of the goods demanded, on the (marginal) utility of the other goods which will have to be sacrificed if these are enjoyed, on the (marginal) disutility or sacrifice of producing the goods necessary to pay for the desired goods, and, by way of comparison,[7] on the disutility or sacrifice necessary to produce, instead of buying, the goods desired.

Cost of production has often been spoken of as if it influenced only supply of goods and not demand. But this, if the position here taken can be justified, is not consistent with a broad philosophical view of the phenomena in question. Conditions of cost influence demand no less than supply,[8] even though their influence on demand is not obvious without a philosophical analysis of economic relations.

This point has importance in the distinction between goods which have and goods which have not any cost of production, i. e. between goods which are reproducible and goods which are almost or absolutely fixed in quantity. Ordinary commodi-

[7] A similar comparison, amounting to the same thing, would be one of the utility of the desired goods compared with the utility of other goods producible at the same sacrifice.

[8] If economists dislike this contention, they must, it would seem, abandon the traditional definitions of demand and supply.

ties are in the first class. Land space is in the second class. The demand for ordinary commodities depends not only upon their utility, but in part, as we have seen, upon their cost of production, for the majority of people will not long pay for any good more than this cost, i. e. more than the amount of other goods which the same effort, etc., would produce.[9] But the demand for land space depends (assuming any given prices) solely on its utility, for it has no cost of production.[10] At any set of prices for the different pieces of land in a community, the demand would be almost totally unaffected by any possibility of producing the desired land instead of buying it, for, on the whole, and with a few exceptions of *made* land, there is no such possibility.[11] Buyers of land would purchase it up to the point where its utility, for their purposes, equalled its price. At a low set of prices, more land would be bought than at higher

[9] The above statement is made in general terms and must be taken by the critical reader with the qualifications already made in this and the previous chapter as to difference of cost to different producers, marginal cost, and dependence of this cost on amount produced. But the statement as here made is sufficiently accurate for the purpose in hand.

[10] Though improvements on it, of course, do have. But such improvements are to be sharply separated in thought from the land itself.

[11] It is not the intention to suggest that the buyer or renter of land space has no alternative. He may use a smaller piece of land more intensively instead of a larger piece less intensively. Thus, he may put a twenty-story building on a small area instead of putting a ten-story building on a larger area. He may choose a poorer site instead of a better one. But the buyer or renter of capital has alternatives of these kinds and has *in addition* the alternative of becoming himself a producer of the sort of capital wanted.

prices. But if the land were sufficiently desired by purchasers, to make the prices high, their demand would not be likely to be limited by any alternative of shifting their industry and becoming producers of land. To an extent, land fertility can be produced by human effort but, practically speaking, land space cannot be.

§ 3

Influences Back of Supply

Let us now analyze the supply side of the market in the same way. The supply of any good, e. g. cotton, depends, first, on the price that can be realized for it, per pound, i. e. ultimately on the amount of other desired goods obtainable in exchange for the cotton. A higher price would encourage larger production. Second, the supply of cotton depends upon the intensity of desire for these other goods securable in exchange by the producers of cotton. Supposing the intensity of desire for these goods on the part of cotton producers to be very great, they would produce large amounts of cotton with which to buy these other goods. Assuming their desire for other goods to be weak and easily satisfied, they would care less to produce large amounts of cotton with which to buy these other goods. If the producers of cotton and of the other goods for which it is given are alike members of a single homogeneous population, able to change easily in large groups, from one occupation to another, the intense or weak demand of cotton producers for other goods will indicate an intense or weak demand in the whole community for goods in general,

probably including cotton, and may not imply any special effect on the value of cotton in relation to other goods. But if, as is the case, cotton is only producible in certain climates, and if those who live and work in those climates are persons whose wants are slight and easily satisfied, the effect on the supply of cotton may be important. In trade between highly civilized countries on the one hand and primitive peoples on the other, the lack of desire upon the part of the latter for anything beyond a few simple necessaries of life, tends (assuming their labor to be wholly voluntary) to restrict the supply of the goods they produce and so to raise the prices of such goods. This result will not follow, of course, if the goods in question can be cheaply produced in the civilized country.

Third, the supply of cotton may depend upon the disutility of producing it, i. e. the unpleasantness or difficulty of or disinclination to do the work or make the accumulations of capital used in producing the cotton. Thus, if exhaustion of the soil should increase the labor per pound of producing cotton, this would discourage its production and, if only the same price as before could be secured, less and perhaps much less cotton would be produced than before. On the other hand, should improvements in machinery and in methods of soil culture make the labor cost per pound of cotton less than before, the production of cotton would be encouraged and, at the same price, a larger amount of cotton than before would be produced and sold.

Summarizing our conclusions thus far and restating them, we may say that producers of cotton

will supply it up to the point where the (marginal) disutility to them of producing it is just balanced by the (marginal) utility to them of the goods which they get in exchange.

But in presenting the above considerations, we have failed to emphasize an influence to which the greatest importance should be attributed. This is the influence exerted by comparison, in the minds of producers, of the various ways of getting what they want as consumers. Thus, the producers of cotton are producing it, in large part, as the most effective way, for them, of securing wheat, bacon, sugar, etc. Should the price of cotton greatly fall or of these other things greatly rise, so that the produce of a year's labor in cotton raising would purchase much less than before of these other things, some of the cotton producers (or persons who would have become such), might instead turn their efforts to other lines, to producing goods other than cotton, which they could more profitably exchange for the various goods they desired, or to producing, themselves, some of these desired goods instead of buying them with cotton. We may, indeed, regard the cost of production of cotton as being the amount of other goods, of one and another sort, which the same effort and self denial would produce and the production of which the cotton raisers forego when they raise cotton. Assuming the possibility of an easy shifting of occupations, they will not care to produce cotton if they have to dispose of it for much less than that amount of other goods which the same effort and sacrifice would produce. To say that they must take less than this, is to say that some other

line (or lines) of production is (or are) more profitable than cotton raising, and such a condition would tend to *decrease the supply* of cotton.[12]

On the supply side then, as on the demand side of the market, in the case of any goods, the cost of production is an important consideration, cost of production being understood to mean the amount of *other* goods which the same effort and sacrifice would produce. Purchasers do not wish to pay more than this cost of production and will, in large part, change their occupations and cease to appear on the demand side of the market, if they do have to pay more. Sellers do not wish to take less than this cost of production and will, in large part, change their occupations, and cease to appear on the supply side of the market if they do have to take less. It need not surprise us that demand and supply are thus both so closely related to cost in the sense of the word here used. Let us remember that those who demand one kind or several kinds of goods, supply other goods, and that those who supply one kind of goods demand other kinds. The demander is a supplier and vice versa. Every person is at the same time a buyer of some things and a seller of other things. And every person, in a modern society based on industrial freedom, has the alternative of becoming a buyer of what he now sells and a seller of what

[12] Another way to put the same thought is to say that the supply of cotton would decrease if the producers of it have to expend more effort and sacrifice in producing cotton as a means of paying for other desired goods, than would be required to produce these goods direct or to produce something other than cotton with which to buy them.

he now buys. In fact, every industrial unit has many alternatives and all of them are determining conditions of his action as an economic unit in industrial society.[13] When buyers, taking them as a whole, refuse, in the long run, to pay for a good *more* than its cost of production, and when sellers, taking them as a whole, refuse, in the long run, to accept less, both groups are influenced, not only by their available alternatives of varying their consumption in amount or in proportions and of varying the intensity or degree of their productive efforts and other sacrifices, but also, and, for many economic problems, most importantly, by their alternative of shifting their fields of industrial activity.[14]

On the supply side, as on the demand side, it is worth while emphasing the distinction between goods producible in indefinite amounts, in relation

[13] Cf. Professor H. J. Davenport's discussion in his *Economics of Enterprise,* Chapter VI.

[14] There is here no intention to deny, of course, that an individual concern can afford to charge a lower price if it can fully utilize its plant than if it is unable to secure business enough to utilize its plant to anything like full capacity. Such a concern might, therefore, be willing to sell a larger amount of goods for as low a price as that for which it would sell a smaller amount. Where the size of plant of maximum efficiency is large enough to supply the entire market for any article or service (e. g. electric light in a city), monopoly production is likely to be the cheapest. (For a fuller discussion of the conditions fixing the rates charged by a company whose facilities are not completely utilized, see the author's *Principles of Commerce,* New York—Macmillan —, 1916, Part III, Chapter I, §6 of Chapter II, and § 1 of Chapter III.) But it should be clear enough that where an increase of output is dependent upon the construction and maintenance of several plants, a higher price is more likely to increase supply than a lower price.

to the world's need of them, such as wheat, corn, cotton, iron ore; and goods more or less fixed in quantity, such as original Greek statuary, the paintings of Michael Angelo, and, chief in importance, land. It is true that producers of wheat, corn and cotton will not engage in the production of these crops at a price below cost (in the sense and on the hypotheses herein set forth). But the sellers of land space do not have cost of production to consider, because land space practically speaking (though there is *some* "made land") can not be produced. The owners of land space therefore, in selling it, consider only the utility to them of what they can get for it compared to the utility to them of the land. The producer of cotton, also, *after he has produced it,* considers only the utility of what he can get for it compared to the utility to him of the cotton—if he has any way of using it all. But cotton is constantly being used up and requiring to be resupplied and *before producing it,* the cotton farmer most certainly *will* consider its cost of production, nor will he go on, year after year, raising cotton for less than this.

§ 4

Labor Costs in Production

Having made the foregoing general analysis of cost of production and its influence on demand and supply, we have now to enter into some of the more detailed aspects of cost. A larger supply of any good (assuming no improvements in methods of production) involves

either more labor by those already engaged in producing it or a larger number of such producers. Neither can ordinarily be had without higher price as an inducement. Let us first consider the possibilities as regards getting more goods of a given sort by engaging more persons for their production. In much of our previous discussion, we have seemed to assume that the tendency, so far as change of employment is easy, is for returns to workers to be about the same in one line of activity as in another, in proportion to effort and other sacrifices. But we have not emphasized the fact that a given line of activity may seem much harder, much more distasteful, to some men than to other men. This fact may sometimes have an important influence on price. By way of illustration, let us suppose a change in occupations abroad of such a sort that far more American wheat was wanted than before, and this not temporarily owing to war conditions but more or less constantly. For a while this want might be very inadequately satisfied, but should the demand and the resultant high price continue, larger acreage in the United States would be sown to wheat, and a larger proportion of the American population would devote themselves to wheat production. Of those who changed from other lines into agriculture, some would be persons with no training for the work and others persons with comparatively little taste for it. To make the large production continuous, the price of wheat must remain high enough to keep these persons in

the work. After a period of a generation or two, new tastes and habits would have time to form, and a larger number of men than before might be willing to engage permanently in agriculture without much extra inducement. But during a short period, though a period of some years, a considerable inducement to wheat production, in the form of high prices, might be necessary.

There is, however, in addition, the possibility of securing more goods of a given sort, e. g. wheat, by getting those already engaged in its production, to work more intensively or to work longer hours. But additional hours of labor become progressively more and more a burden and there is a progressive disinclination to perform such labor. At first thought we might suppose that a higher rate of pay per hour would encourage working longer hours, that a higher price of wheat, for instance, would cause persons already engaged in wheat production to work longer hours and thus produce more wheat. But it is perhaps equally likely that the larger returns per hour, resulting in greater prosperity, would make the longer hours of labor seem less necessary as a means of getting a living[15] and would encourage the taking of more leisure. So there is no certainty that a higher price would in that way add to the supply even temporarily. So far as agriculturists could change from other lines to

[15] Cf. Jevons, *The Theory of Political Economy*, fourth edition, London (Macmillan), 1911, pp. 179-183.

the production of wheat, a rise in wheat prices might induce them to do so, and eventually it would bring more men into agriculture; but it very likely would not increase the intensity or the hours of labor and it might, conceivably, even decrease them. It does not follow that a lower price would cause more wheat to be produced than a higher. For though smaller returns from wheat and other farm products might necessitate somewhat more work to make a living, if agriculturists *had no alternative,* yet, as things are, lower returns than in other lines would divert many into these other lines and so almost of necessity decrease the supply of agricultural produce,[16] just as higher returns would draw more men

[16] Even if a lower price, e. g. for wheat, would actually bring a larger supply than a higher price—as it might if wheat producers were unable to change their occupation and simply had to work harder for a living—price would still be determined at the point where demand and supply were equal and, probably, there would be only one such point. Any other price would mean a position of unstable equilibrium and could not continue. The high price, though it might, on the present hypothesis, limit supply, would be likely to limit demand still more. The low price, though it might increase the supply, would presumably still more increase the demand. Competition would therefore operate to fix price at the point of equality. We are not here dealing with a supply which, at any price, is a certain amount or indefinitely more (see Fisher, *Elementary Principles of Economics,* New York—Macmillan—, 1912, pp. 317, 324) but with a supply which, though it increases as price falls, increases, for each lower price, only up to a certain limit. Some point of equilibrium there must be, unless we suppose supply to increase as price falls, and to decrease as price rises, more rapidly than demand; and that, therefore, demand exceeds supply at the higher prices, and falls short of it at the lower.

into wheat raising and increase the number of bushels produced.

§ 5

Land and Capital Costs in Production

We have seen that to get a larger supply of any good may be expected, ordinarily, to require a larger amount of *labor.* Attention should now be called to the fact that it requires the use of more *land* or a more intensive application of labor and capital to land already used for the line of production in question, or both. Suppose, as before, that there is desired the production of wheat. Assuming other things to be equal, more wheat can not be produced unless the land already devoted to wheat production is cultivated more intensively, unless additional land not previously cultivated is brought under cultivation, or unless land previously used for other purposes is diverted to the production of wheat. To get larger wheat production in any of these ways, requires a higher price. Assume that the price has been $1 a bushel. At that price the average producer will cultivate his land with whatever degree of intensiveness yields the greatest gain. He will increase the amount of labor devoted to cultivating his wheat land, as long as the wheat yielded pays the wages of this labor and a satisfactory return on the necessary capital. But the point is soon reached beyond which additional labor can not, without spreading over more land, produce wheat enough to cover

the requisite wages. For it is impossible, on a given piece of land, indefinitely to increase the amount of labor and get a proportionately increased product. This fact is, of course, generally known to farmers, and, in its applications to urban land, is known to merchants and manufacturers also. But if wheat sells for $1.20 a bushel, and money wages remain the same, or even advance somewhat,[17] it may be profitable to cultivate a given piece of land more intensively than otherwise would pay. An additional man may be hired and, though the amount of wheat produced probably will not increase in anything like the same per cent as the labor, the increase, *at the new and higher price,* will be more likely to cover the additional wages paid and to yield some profit, than it would at the lower price. But the point to be emphasized is that, other things equal, it will not pay thus to cultivate the land more intensively *unless* the price to be received *is* higher. The higher price is a necessary means of bringing out the larger supply.

The same principle applies to urban land. To increase the amount of manufacturing or of retail trading on a given area, necessitates more crowded quarters or else higher buildings, and the higher buildings are made the more solid must be their foundations. In other words, a point is eventually

[17] To the objection that we have assumed wages virtually to fall since we assume wheat prices to rise in a greater degree than wages, the answer may be made that, if the prices of other goods do not rise at all, wages need not rise as far as does wheat in order that wage earners should be able to enjoy a *larger* amount of goods-in-general than before.

reached where additional stories, and, therefore, additional production on the same land space, yields a less reward than would smaller production, proportionate to the labor (including the labor of building) expended.

If all land had exactly the same capacities and advantages, an additional demand for wheat would not for any great length of time cause wheat land to be cultivated any more intensively than before, as compared with land used for other purposes. It would always be more profitable, if a larger amount of wheat were wanted, to divert land from the production of other goods into the production of wheat. But in fact, land has not all the same capacities. Hence there would be some loss in turning into wheat production land previously used to produce (say) corn. The corn land is farther south, on an average; and rather than get all the extra wheat desired, by diverting former corn land into wheat production, it may be desirable to get part of it by cultivating more intensively the land already devoted to wheat raising. But it is also true that an additional demand for wheat (or other goods) is likely to be partly satisfied by diverting into such production land which was previously otherwise used. This, of course, necessitates a higher price for the wheat. Let us suppose that tastes or customs have changed so that wheat is even more used as food than now and corn less so. Since some of the land used to produce corn can also be used to produce wheat, the probability is that part of the additional wheat wanted will be so secured. But it will not be so secured except at a higher

relative price for wheat. Presumably the lands used for producing corn are devoted to that purpose because, at existing values, it pays best so to devote them.[18] But with wheat higher in price, and corn, perhaps, lower, it may be worth while to divert some land from the one use to the other. The use which was before *less* profitable, now becomes *more* profitable in relation to other uses. The two kinds of goods are competitive and that one which can pay more for the use of the land, gets it.[19] A change in relative values may give to a wheat crop, land which would otherwise have been devoted to corn; or may, in a city, give to a shirt factory, land which would otherwise be used for a shoe factory or for a wholesale grocery.

Following our previously adopted sense of "cost of production," we may say that the cost of production of wheat (at the margin of wheat production, viz, on the land which it is just worth while to devote to that purpose instead of to some other—or no other—purpose, and with the labor which is just induced to follow wheat production) is measured by the value of the other goods, e. g.

[18] Though it will also pay, in many cases, to alternate or rotate crops, for the sake of retaining fertility, nevertheless, a higher price of wheat would introduce it into rotations from which, at a lower price, it would be omitted.

[19] This idea, suggested by Mill in a reference to what he regards as an exceptional case (*Principles of Political Economy,* Book III, Chapter IV, §6), appears to be clearly understood by Jevons who discusses it at length in the preface to the second edition of his *Theory of Political Economy,* .(See pp. xlvii-li of the fourth edition.)

corn, which the same labor and land might have produced instead.

Since, besides land and labor, machinery and other kinds of "capital" are used in production, and since such "capital" can only be accumulated by saving, we may regard saving (or "waiting") as one of the three primary factors of production, the other two being labor and land. And we may widen our concept of cost of production so as to include consideration of saving. We shall then say that the cost of production of wheat, for example, is the amount of corn or other goods which the same labor, land *and saving* could produce if devoted to such other line and which must therefore be sacrificed if the wheat is produced instead.

§ 6

The Value of Land

The value of land—and of some other goods not now reproducible, such as original Greek statuary —has little or no relation to cost of production. Land has no cost of production (though there is, of course, a very little "made land") in the sense in which we have used this expression. The amount which purchasers will pay for land is not, practically, limited by any alternative they may have of producing some of it themselves, nor is the amount that sellers will take at all determined by any corresponding consideration of other rewards which the labor of its production might have brought them, since there is, for land as such, no such labor of production. Land has a

value based on its earning power,[20] but this value is neither directly nor ultimately fixed by any cost of production.

§ 7

Joint Demand and Joint Supply

Two cases of value, sometimes called special cases though really, perhaps, more usual than the more simple case, remain to be cleared up. One is the case of joint demand; the other is the case of joint supply.

Demand for the services of railroads may be mentioned as a case of joint demand. Demand for rail transportation involves, indirectly, demand for rails, ties, ballast, engines, cars, services of engineers, etc. All of these together are necessary for transportation. Demand and supply (or, in some degree, government regulation) fix a set of rates (prices) for transportation and these rates go out indirectly as payments for the various services by which the service of transportation is made possible. If any one thing needful for transportation is scarce, e. g. ties, the price of that thing may go very high indeed without raising the price of transportation (dependent on so many prices) in anything like the same degree, and therefore without greatly diminishing the demand for transportation. The different articles and services included in joint demand may change greatly in price relatively to each other, according to their relative costs of production, without chang-

[20] Cf. Chapter VI, §2.

ing the price of or the demand for the desired combined service.[21]

Joint supply is the familiar case of by-products. Two or more things are in part produced by the same process. Thus, coke and coal gas are both produced by the process of abstracting gas from coal. The expense of mining the coal and the expense of abstracting the gas are then joint expenses. These expenses would have to be met either to get the coal gas or to secure the coke. Another example, commonly given, is that of wool and mutton. These are joint products of the sheep raising industry. The expense of sheep raising is a joint expense, an expense which must be met to secure *either* the wool or the mutton, but which, if it is met, makes it possible without great additional cost, to get *both* wool and mutton. In this case, as in most cases of joint supply or joint cost, not all of the cost is joint. The cost of shearing is not joint but is necessary only to get the wool. The cost of slaughtering is necessary to get the mutton. The expenses of marketing are also, for the most part, special. But a considerable part of the total expense is joint.

In the case of joint supply, a part of the expense of production, i. e. the part which is joint, will be covered in varying proportions in the price of the several goods so produced, according to the

[21] Cf. Marshall, *Principles of Economics*, sixth edition, London (Macmillan), 1910, pp. 381-383, and Taussig, *Principles of Economics*, second edition, New York (Macmillan), 1915, Vol. I, pp. 221-224.

relative demand for such goods.[22] The producers must, in the long run, receive, from all the goods jointly produced, the average return on the labor and capital applied to production of such goods. But any one of the by-products may, if demand for it is small, sell for little more than enough to cover the special expense of producing and marketing it. Thus, in the case of wool and mutton, the prices received for both must cover the cost of marketing, slaughtering and shearing, as well as the cost of maintaining the flocks; but the price received for the wool alone, in case the demand for wool is relatively small—or for the mutton alone, if the demand for it is small—need cover little more than the special cost of producing and marketing the one product, leaving the purchasers of the other to pay the part of the cost which is joint. In consequence of this fact, an increased demand for mutton would tend to lower the price of wool. For it would encourage sheep raising and would thus increase the amount of wool. But the larger amount of wool could not be sold (for we are not assuming a greater demand for it) except at a lower price. Hence, the price would fall, and, since the process of producing the mutton involves, also, the preliminary step of producing the wool, it would be worth while to sell the wool for the cost of shearing and marketing, rather than not sell it at all.[23]

[22] See J. S. Mill, *Principles of Political Economy,* Book III, Chapter XVI, §1.

[23] For a discussion of whether railroad rates are an example of joint cost, see the author's *Principles of Commerce,* New York (Macmillan), 1916, Part III, p. 9, footnote.

§ 8

Summary

In this chapter we have endeavored to trace the influences bearing upon value and price back to their more remote origins. Since supply of one good means demand for others, it appeared that there could not be a general oversupply of all goods but that an oversupply of some means merely a relative undersupply of others. Demand for any good involves a willingness to sacrifice something in order to get it. The sacrifice may take the form of extra effort or of giving up some alternative good. At any price the demand of each purchaser is for so much of the good that another unit of it would be worth no more than the price paid in money, and, therefore, in labor or in other goods. A high price of any article would tend to reduce demand for it not only by discouraging its consumption but also by causing many who would else be purchasers of it to become instead producers of it. In this sense, demand for any good depends upon its cost of production. Purchasers will not, in the long run, pay more for a good than the amount of other goods which the same productive effort and other sacrifice will produce. The prices at which there may be demand for a non-reproducible good, are not thus limited.

The supply of any good depends upon the price offered, and upon the intensity of demand of the producers of it for the other goods they indirectly get through its sale. A higher price will not of necessity always cause producers to work longer or

harder at their task. It may encourage them to reduce their hours of work since it may enable them to earn more than before in fewer hours than before. But a higher price will usually increase the amount of any good produced since it will usually increase the number of persons producing that good by diverting some from other lines. Supply, therefore, depends upon cost of production except, of course, in the case of non-reproducible goods, of which, with some qualification, land space is an example. To get more of anything produced may require a higher price because persons relatively ill adapted to its production or to whom the work is comparatively distasteful must be drawn in, because poorer land must be used, because land already so used must be used more intensively, and because land relatively better fitted (at the old relation of prices) for other production must be drawn in.

The cost of production of any good comes finally to be expressible as the amount of some other good or goods which the same labor, land and saving could produce. The cases of joint demand and joint supply were found to involve some intricacies but no new fundamental principle.

CHAPTER III

THE CAUSES OF INTEREST

§ 1

The Factors of Production

The factors of production may be said to be land, labor and capital.[1] Some writers mention business leadership as a fourth factor, but this since it involves mental *effort* and requires directing ability, may properly enough be regarded as a kind of labor. Other writers class land with capital, but we have already found reasons to consider land separately from goods produced by mankind,[2] and shall have reason further to press the distinction, later on.[3]

Let us now consider what fixes the amount of each factor of production. As to land, little need be said. Its amount is practically fixed by nature. There is, to be sure, some "made land." The people of Holland have dyked back the North Sea and made cultivable a considerable area which would otherwise be largely under water. There are doubtless other cases where land is "made" by human effort, though not on so large a scale. But it is nevertheless almost absolutely true that

[1] Since capital depends upon productive effort plus saving, the ultimate factors are land, labor and saving (or waiting). Cf. Senior, *Outlines of the Science of Political Economy*, fifth edition, pp. 58-60.

[2] Chapter II, §§2, 3 and 6.

[3] Chapter IV, §§ 3 and 5.

the amount of land space in existence is fixed by nature and cannot, practically, be changed by man. The barrier to increase of available land space is not absolute. It is conceivable, for example, that shallow parts of the ocean might be filled in by dredging sediment from other shallow parts. But the expense would almost invariably be prohibitive, certainly in relation to the expected gain. In other words the (marginal) cost of production of land, if it were necessary to produce much of it in the way suggested, would be tremendously high, and land would have to get tremendously scarce and high in value before it would be worth while so to produce it to any appreciable extent. The value of land space, therefore, as pointed out in the last chapter,[4] cannot be said to depend in any marked degree, if at all, on the cost of production of land. Nor can the amount of land space in existence be said to depend on the amount for which land will sell or upon the profits which land ownership yields. Thus land space differs from most other goods in the relative fixity of supply, for a higher value of other goods or a higher profit from their use, or a greater efficiency of labor, may affect the supply of such goods considerably. Though land fertility may be increased by labor, land space practically cannot be. So far as the fertility of land is

[4] §6. For further discussion and elaboration of the various points of difference between land and capital, and for critical consideration of views inconsistent with that presented in this book, see Chapter IV, §§3 and 5, and Chapter VI, §§1, 2, 3 and 8.

given by nature and is not, practically speaking, dependent on the efforts of man for its maintenance, we shall class it with land space as a part of the factor *land.* So far as it is a *produced* fertility, we shall regard it as *capital.*

§ 2

The Accumulation of Capital

Land may be regarded, in a sense, as one of the tools man has to work with, a tool furnished by nature. Man's other tools, though drawn from the land, are furnished, in a sense, by himself. He constructs them and fits them to suit his needs. With these tools we should include such improvements on the land as foresting, draining, fertilizing, fencing, clearing, leveling, etc., as well as the buildings placed upon the land. All of these things can be increased by human effort and are not fixed in quantity in the same degree as land.

Among the things produced by men, it is necessary to distinguish those made for personal pleasure or practically immediate consumption and those made as steps towards future consumption, such as accumulated stocks of goods, buildings, tools and machinery, etc. The former we call consumptive goods, and the latter we call capital. While it may be hard to determine, in some borderline cases, to which class certain things belong, the general distinction is sufficiently clear for use in our further discussions.

What determines the extent to which such capital will be accumulated? Several influences are important. First, may be mentioned the

efficiency of production. In a community where wealth is easily produced, a large amount can be accumulated with less deprivation of immediate wants than if productive effort were less efficient. Rich natural resources, well-trained and intelligent labor, high capacity for work, all tend to facilitate accumulation. And the fact that accumulation has taken place in the past and that, as a consequence, the community has more and better machinery of production, certainly tends to make productive effort more effective and so to make further accumulation easier.

In the second place, the amount of capital depends upon personal characteristics of the members of a community, upon the extent to which they desire to save and are willing or anxious to deny themselves present gratifications for the sake of the future of themselves or their children, or other dependents.[5]

§ 3

The Productivity of Capital

We are now ready to begin our discussion of the distribution to different economic classes, of what the industrial and commercial processes produce for human use and consumption. First among the shares received, we may consider the interest on accumulated capital. This has been said by some writers to be due to the productiveness or

[5] Perhaps the best statement of the influences that lead to and that retard accumulation is to be found in Fisher, *The Rate of Interest,* New York (Macmillan), 1907, Chapter VI. John Rae, Böhm-Bawerk and others have also developed this subject.

productivity of capital, and by others to be a consequence of the fact that to get an accumulation of capital there must be a degree of abstinence practiced or that an inducement must be offered to get men to sacrifice present consumption for future. Let us examine these alleged causes of interest with a view to determining what their significance may be for our problem.

That capital is productive in the sense that we can get more with it than without it, is generally recognized. It is recognized simply because experience indicates that it is a fact and not by virtue of *a priori* reasonings. And experience indicates it to be a fact, not in the sense that every possible mode of production with capital is more effective than production without it, but only in the sense that, given any stage of knowledge of how to use capital, production is more efficient if we can get a certain amount of capital to use *in the understood ways* than if we can not. No one would seriously contend that every use of machinery or other capital was advantageous. It is entirely probable that we often use valuable (in the sense of having high cost) and complicated machinery to do work that could be as effectively done without it or to do work not worth doing. We construct buildings of stone in places which are soon deserted and where, therefore, frame buildings—though less enduring—would be more economical. And where we do use capital advantageously, it often is true that an attempt to use it on a much greater scale would not be worth while. To lengthen the production process by introducing more steps is not desirable

without limit. The thought will perhaps occur to the reader, not only that capitalistic or "round-about"[6] production processes either may or may not be advantageous, but also that if those which we use are, for the most part, advantageous, this is because we would not intentionally use them if they were not. On the hypothesis that present pleasures are always preferred to future ones and future discomforts to present ones, this view is justified. But it might easily be the case that a person or group of persons would rather do work today which should find its fruition years hence when needs are great and strength is small than to do the work now for a like present reward, or later for a later reward.[7] We cannot definitely assert, therefore, that a long time process of production, involving the making of machinery or the planting of trees or some other early labor as an intermediate step to getting a future product, would never be chosen in preference to a short time process, unless there were an advantage in choosing it from the point of view of a larger total product. Often we might find advantage enough from saving, in having nature offer us the opportunity to store up labor—which it happens to be convenient for us to undergo today—until a future when its product is more needed.[8] Never-

[6] Böhm-Bawerk's expression. See *The Positive Theory of Capital*, English Translation, London (Macmillan), 1891, or *Positive Theorie des Kapitales*, Dritte Auflage, (Innsbruck), 1912.

[7] Cf. Carver, *The Distribution of Wealth*, New York (Macmillan), 1904, pp. 232, 233.

[8] But unless there were a gain from thus investing, the average person would probably simply hoard some indestructible form of

theless, although some kinds of capitalistic production may not profit us, and although we might be willing to produce capitalistically to some extent without getting a consequent larger return; yet that we usually do, in practice, secure a much larger product with the use of capital than we could secure without it, is a conclusion resting on hardly-to-be-denied experience. And so long as we can find ways of thus producing capitalistically which are gainful, i. e. which yield us more than the same effort would yield if a part of the effort applied were not first devoted to capital formation, we are not likely to waste our time in the many (perhaps) possible ways of capitalistic production which do not yield a gain.[9]

In connection with our argument that capital makes production more effective, the qualification should be made that this principle applies as logically to the production of noxious drugs, burglar's tools and other socially undesirable articles or services, as to the production of socially desirable goods. Capital becomes altogether beneficent only if all possible anti-social uses of it are prohibited. Again, roundabout or capitalistic production must be held to include activities other than the construction of what is ordinarily called material equipment. It includes activities which work out their long runs effects through

wealth such as gold. Possibly an iron-clad government guarantee of the return of each person's capital in any form on demand would be equally as satisfactory as hoarding, to some.

[9] This is not to deny that we will use capital to keep (store) the products of one season for use in another, though the capital so used increases only utilities and not material goods.

changes wrought in men's minds. Thus, it may be regarded as including education pursued for the purpose of increasing one's earning power. It includes also such activities as the bribery of public officials and the attempt, by misleading public sentiment and by building up political machines, to get thereby, for those pursuing such policies, profitable contracts and other advantages in the future, at public expense. A business concern which, by thus taking measures and making expenditures to secure for itself the opportunity of getting profitable if dishonorable business, has, so far as its purposes are concerned, increased its capital as much as if it had increased its investment in buildings or machinery and is, from its point of view, engaged in roundabout or capitalistic production.

It is to be emphasized that capitalistic production is time-using production. Instead of plucking, as we need it, the wild grain, and so keeping an interval of but minutes or even seconds between effort and the satisfaction of needs, we sow or plant the grain months before we expect to reap it; we build barns which—though we may soon *begin* to use them—we shall not have *finished* using, perhaps, at the end of half a century; we manufacture plows, harrows and reapers which will not yield us, for many years, all that it is in them eventually to yield; we construct factories for the manufacture of these implements, factories which, when their builders have long since ceased to build, will still be turning out implements of agriculture for long continued future use; we build bridges, lay tracks, erect stations and con-

struct locomotives, any or all of which can not, ordinarily, yield us this year or next an advantage at all comparable to their cost—i. e. to the advantage which our effort might have brought if devoted to the satisfaction of more immediate needs—but which, in the long run, pay for themselves often several times over. In all of these cases we interpolate a long period of time between the putting forth of effort and the receiving of its entire product, though in some of the cases a small part of the resulting product is enjoyed early.

Production may be made more capitalistic by increasing the *length of time of waiting* between effort and enjoyment of the results of effort, or by increasing the proportionate *amount of effort* (more accurately, perhaps, by increasing the proportionate amount of labor, of land, and of available tools) which is directed to remote instead of comparatively immediate ends. In either case there would be an increase in the average time, all work considered, between the putting forth of effort and the receiving of its fruits. Thus, the time elapsing between effort and the receiving of the entire reward of the effort is increased when, instead of making frame buildings for factories, we construct the factories of structural steel. The buildings are more permanent; a longer time elapses before they have rendered all the service of which they are capable. But we also increase the roundaboutness of production if, without lengthening the production period for any one factory, we divert a part of our labor force, previously occupied in utilizing existing equipment,

into the work of building an additional factory. It may easily be that all of the labor employed in (say) shoe production *could* be employed in keeping up and in operating the existing factories and machinery; and that nevertheless production would be larger if some of this labor was used for the building of another factory, since thus there would be more space and larger equipment per operator. Such diverting of a part of shoe-producing effort to the *addition* of shoe-producing equipment would be, no less than to make equipment more durable, an increase in the roundaboutness of production.

So, also, the diverting of coal mines which had been used for the production of coal to run the machinery of an existing shoe factory, into the production of coal for the smelting of iron and for the making of structural steel to be used in building an *additional* shoe factory, would mean a use of the coal mines, as well as of the labor of the operators, in a more roundabout way than before. Again, the diverting of land from use as pastures and for the production of hides to be used in shoe making, into forest growing and the production of lumber for the building of shoe factories would be, in respect to such land, an extension of the roundaboutness of production. Such a change to greater roundaboutness in the production on exceptionally well located (or otherwise good) land would be likely to mean a larger change in the degree of roundaboutness of production[10]

[10]It is, of course, assumed at this point, that the land in question is reasonably well adapted to either use.

than a corresponding shift in the kind of production to which inferior land is put. Still again, the productive use of both land (the site) and capital (the building) is made more roundabout if a factory intended for the manufacturing of shoes is used for the making of shoe manufacturing machinery. Any parts of the product which may be attributable to the land or to the capital as well as what is attributable directly to labor, then take more largely the form of capital or instruments of further production than before and less largely the form of consumption goods.

There seems, however, little point to speaking of *capital* (i. e. produced equipment goods) as being diverted to greater or less roundaboutness in production since capital is itself but a stage in the roundabout application of labor applied to natural resources. Capital is an intermediate good and a derivative of more ultimate factors. To divert capital to more roundabout production is really to bring it about that the original labor of constructing this capital was more largely roundabout than it otherwise would have been and that the land space utilized in the process of its production was also devoted to the securing of more remote ends. Let us conclude, then, that the roundaboutness of production is increased when labor is diverted from less to more roundabout processes and that this change is greater when the labor is working on sites which yield a surplus or rent above wages,[11] since this surplus then, as well as the

[11] Providing, of course, that a surplus is produced when the land is devoted to the more roundabout process.

(marginal) product of labor, takes the form of production goods.

The roundaboutness of production has been increased, to use another illustration, by the building of railroads. Let us suppose two towns, A and B, 200 miles apart. In the absence of better means of transport, goods are carried from the one town to the other and different goods returned in trade, by men acting as carriers. It takes, let us say, a week, for twenty men to carry a ton of goods from A to B. Omitting, for the present, considerations regarding the raising or manufacture of these goods, we may say that only a week of labor precedes the consumption of the goods and only two weeks precedes a complete trade and the consequent consumption aimed at by the people in both towns. And all of the benefits towards which the two weeks of labor were directed follow with relative quickness the putting forth of the effort. If, however, instead of carrying the goods on their backs, the carriers make carts or wagons and domesticate animals to draw these, their accomplishments may be much greater; but the period during which these accomplishments are realized will be, in relation to the period of effort, more deferred than before. A wagon may, indeed, be made in a week's time and by the end of another week it may have carried more goods between the two towns than the maker could carry, without it, in a month or more. But the wagon will not, in a week, be worn out. On the contrary, it will presumably be in condition for use during many later weeks through all of which the service rendered by it is largely a result of the labor put forth in

making it. The rewards of that labor (of making the wagon) are, therefore, *on the average,* more deferred than the rewards of the labor of carrying when wagons were not used. Suppose, next, that a railway is built between the towns. The building requires three years, during most of which period the rails can not be used to carry goods. At the end of the three years, the possible trade may be, indeed, much greater than before and the carriage of goods swifter; but the labor of building the railroad will still be contributing to community welfare long after those who built the road have ceased to be able to lift a spade or carry a tie. Surely the length of time elapsing between effort and the *totality* of the reward of that effort, or even the earlier half of the reward of that effort, has been tremendously increased. By no means all improvements in the processes of production are of the time-lengthening character. But it does appear to be true that many of them are so. Our orchards, our irrigated farms, our stone-paved streets and concrete sidewalks, our buildings of structural steel, our complicated machines of steel and iron, our railroads, and our great steel ocean-going vessels,—all involved for their construction labor the fruits of which are not enjoyed in full until long years beyond the time when the labor was put forth.

§ 4

Capital Accumulation versus Marginal Capital Productiveness

But although the more roundabout processes of production seem to be—at least, those that we actually do follow—clearly advantageous to us, yet our gain seems to be proportionately smaller as we thus utilize proportionately larger amounts of labor. To add to the community's equipment a certain number of railroads, buildings, machines, fruit orchards, etc., may add immensely to the product we can hope to realize from our efforts, while a further amount of labor devoted to the still greater increase of such equipment would be of diminishing advantage, and a still further devoting of time to such a purpose of yet smaller benefit. A single railroad between New York and Chicago is tremendously advantageous as compared with none at all. A second railroad may be of great importance but is less nearly indispensible. A third and a fourth may be desirable enough to be worth building. But there comes a point of relative sufficiency of such railroads, beyond which it pays better to devote our labor to other purposes.

Again, while it may be far better to have one or more railroads between two points than not to have them, there will be, perhaps, a less proportionate gain from the added expenditure necessary to make the lines relatively straight. It is much better to have a winding road than no road at all. A straight and level road might involve tunneling through mountains and the bridging of gulleys

and might be, therefore, immensely more expensive in initial cost; while yet it might, eventually, be labor saving. In other words, a given large amount of effort is likely eventually to accomplish more if the straight road is built. But the per cent gain may diminish with each such improvement.

The addition of stock, buildings and machinery to a farm reaches, in time, a point beyond which it is not worth while to go. A barn may seem almost indispensable. That more time should be devoted to its building, making it larger, or that two barns should be built, may be desirable for the sake of having a protected space for the bumper crops of exceptional years; but a second barn is of much less importance than a first and may be said to bring a diminishing advantage. Even the fact that part of such a crop must be stacked may not be a sufficient reason for the building of the larger or the second barn, in view of alternative opportunities for the employment of the necessary labor. Likewise, a mowing machine, though requiring more initial labor to make and, therefore, a much higher price to buy, is immensely to be preferred to several scythes. A second mowing machine is of less advantage though the gain from having it also may be considerable. Sometimes the possession of the second machine may make possible the getting in of a crop during a short sunny period, or the use of a team which cannot, for a few days, be otherwise used to advantage; or the second machine may temporarily be the sole resource if the first happens to be, for any reason, out of commission. The gain from a third

machine would be negligible and from a fourth there would perhaps be no gain at all. Again, to take another illustration from agriculture, the grain product which a given amount of labor can secure, will be greater if cradles are used for reaping than if sickles are used, and very much greater if a reaping machine is used. Or we may say that a given grain product can be realized from a given land area with a smaller expenditure of labor when the improved machinery is used than when reaping is done with the tools of an earlier generation. And still further gain, though perhaps less gain proportionally, is realized from the use of modern reapers which bind the grain as well as cut it. Nevertheless, there is undoubtedly a limit, though perhaps an elastic one, as to both quantity and quality of machinery beyond which it is not worth while to pass.

But if, in any community, only a limited amount of effort (as well as of land and equipment already available) can be devoted to the construction of equipment for production, consideration must be given to the fact that some equipment is more important than other. The farmer can get along without a reaper better than without a barn. He can get along without a silo better than without a reaper. The railroad can get along without stations or with inadequate stations better than it can get along without a track, engines and cars. The city can get along without stone paving on its streets better than it can get along without any streets at all.[12]

[12] It is not at all obvious as Cassel appears to suggest that it is (*The Nature and Necessity of Interest*, London—Macmillan—,1903,

We conclude, then, that the gains from roundabout production tend to diminish as such production is extended, and tend to diminish whether the extension of roundaboutness takes the form of the addition of equipment beyond the most necessary kinds, or of an additional amount of equipment of all kinds, or of more expensive quality of equipment. In fact, when the amount of effort, land and tools available for the production or maintenance of desirable capital equipment is greatly limited, the effect is likely to be as apparent in the making of poorer and cheaper equipment as in a diminution in the number of equipment implements.[18] The reason is that the

pp. 31 and 55) that the diminishing return to capital as capital is increased, is related to the law of dimishing returns from land. It is true enough that as the application of labor to land increases, after the point of diminishing returns is reached, the returns yielded to the further applications of labor become relatively smaller, and this is doubtless equally the fact whether the labor is directly or indirectly (i. e. by first being devoted to capital making) applied. But it does not follow that the *net per cent gain* of roundabout *over* direct production will be any less because population is large in relation to natural resources and because the returns to both roundabout and direct production are therefore small. To express differently the same thought, if the value of capital is measured by the other goods which the capital-forming labor (and other factors of production) could have produced as an alternative, the per cent return on this value is not necessarily any lower because of a lower margin of production on land. The correct opinion appears to be clearly stated by Jevons, *The Theory of Political Economy,* fourth edition, London (Macmillan), 1911, p. 255; Cf. also p. 314 (Appendix III).

[18] This view is clearly held by J. B. Clark although he seems not to have thought it necessary to present the argumentative defense of it which follows above. See *The Distribution of Wealth,* New York (Macmillan), 1899, pp. 174-177.

competition of employers for the use of equipment will result in relatively poor equipment for the use of nearly all labor rather than in splendid equipment for some labor and none at all for the rest. A small amount of the poor equipment yields greater advantages to those enterprisers who would otherwise have none—and they can therefore bid higher for it—than a corresponding addition to the *quality* of their equipment would yield to employers who might be especially favored with the more costly buildings, machinery, etc., but who could not, because of the limited amount of this capital, employ all the community's available labor. In other words, although the more costly equipment would presumably be more durable or otherwise superior, yet if the necessary labor of its construction would be so great as to mean an inadequate *number of implements* for the labor force of the community, the bidding for the use of capital of those who might otherwise have none, would prevent putting all available capital value into the more durable or otherwise more expensive form. Let us suppose a community for the use of which an amount of capital is available large enough to house all its industries in frame buildings but sufficient to house only half of them in buildings of structural steel and concrete. Though the more substantial buildings would perhaps have a potential life more than twice as long, yet, *in view of the assumed existing situation,* it would not be desirable to choose them. The extra investment of labor that would have to be made to construct a given building in the more substantial way, could be used to get a second of the less

substantial buildings along with the first; and this would be the more worth while investment, until the community became richer and could spare labor from other activities to construct a relative sufficiency of the more expensive buildings.[14] An additional cheap building would add

[14] J. B. Clark, criticizing Böhm-Bawerk, says (*The Distribution of Wealth,* New York—Macmillan—,1900, p. 138) that adding to the length of the production periods "does not necessarily add to the amount of capital in existence," that, if it does not, "the increase in the average length of the periods does not have the effect that the brilliant Austrian economist attributes to this lengthening, for it does not reduce the rate of interest" which might "be high when the periods were long and low when they were short" and that it is "when the *quantity* of permanent capital increases that interest falls."

Professor Clark's theory, however, is more easily to be reconciled with that of Böhm-Bawerk than he appears to realize. In the first place, a lengthening of production periods distinctly tends towards an increase of the amount of capital. Consider the case of a man who is about to work for 100 consecutive days. If the average period of production is short, he may spend 5 days in making a capital instrument which yields its services during the next 5 days during which the man is producing another to take its place, and so on throughout the 100 days. There will, then, at no time be more than 5 days of labor stored up as capital. But the production period may be much longer. Thus, it may require 50 days to make an instrument which yields its services during the next 50, during which it is replaced. In this case, although no more days than in the other are devoted to capital production, there is always—after the first 50 days—50 days of labor stored up in capital. The *amount* of capital in existence at any one time is much larger. (Elsewhere —pp. 293-295—Clark himself recognizes this principle.) Assuming the amount of saving done in a community to be such as to cause many to engage in such longer production processes and assuming that the increased length of period does not correspondingly increase the product, we should have to conclude that the rate of interest would be lower.

In the second place, it is *just because* an indefinite increase in the length of the production periods will not correspondingly increase

much more to the efficiency of labor in such a community than *greater durability* of a building certain to be constructed in any case. Hence an employer of labor would prefer to use what capital he could get, in the former way. Hence, also, prospective borrowers of capital desiring to use it in the former way could afford to pay more for its use.

It should be emphasized that the use of capital does not necessarily mean a progressively larger product, does not mean, for instance, a larger product next year than this. All it means is a

the returns to labor, that so much labor is devoted as is devoted, to the production of the shorter-lived capital instruments and that the marginal productivity of these shorter-lived instruments is reduced to a comparatively low return. Suppose the average production period to be a year and capital to yield, at the margin, 10 per cent. Increased saving might, by increasing capital, reduce the marginal gain from using it to (say) 8 per cent. But if it should meanwhile appear that these savings could be used in a three-year roundabout process yielding at the rate of 10 per cent a year or 33.1 per cent (compounding) for the three years, the one-year instruments would be less constructed and would become comparatively scarce. Hence their marginal product would become as great as 10 per cent and interest would become 10 per cent. If however, the lengthening of the production period would *not* correspondingly increase the product, this lengthening would be less resorted to and more one-year instruments would be constructed. Hence, interest might fall to 9 or 8 per cent. Even, therefore, if we were to regard increased length of production periods as not involving any increase of capital more than would be involved in devoting the same labor to the production of short-time capital instruments, and even if we were to regard the rate of interest as being fixed directly by the marginal productivity of these short-time instruments, the possibilities of resorting to roundabout production would still have to be taken account of as conditions determining the amount of short-time capital that would be constructed.

larger product next year than next year's product would be if capital were not used. We may choose to produce capitalistically up to and not beyond a certain limit. If we so choose, we may go on, year after year, producing the same amount of wealth and maintaining an unchanging standard of living, but getting, each year, more than we could get with corresponding effort, were our methods of production less capitalistic.

§ 5

Saving or Abstinence in Relation to Interest

In order that the more productive roundabout process may be followed, there must be saving. For the roundabout process means, as we have seen,[15] productive effort the full reward of which is greatly deferred. The labor of building a railroad must be fairly well completed before the resultant services can begin, and not for many years are these efforts rewarded with *all* the services towards which they were directed. Yet the persons who build the railroad must have food and clothing while they are at work. In like manner, the labor of building a factory for the making of agricultural machinery may be an initial step in the securing of wheat and, therefore, in the securing of bread. The persons who perform this labor must have food and presumably, bread, yet the labor does not immediately produce bread. There must be bread at hand, or securable by the builders during the period of their building, else the work can not go on.

[15] §3 of this Chapter (III).

The fact that subsistence must be available to make possible the prosecution of roundabout production may mean and probably does mean that there are at hand accumulations from the past. These accumulations will not be mainly, perhaps, stores of wheat, etc., from the last harvest (although in winter and spring such stores must be considerable) so much as accumulations of machinery, draft animals and buildings which facilitate production of wheat, etc., as needed. But whether roundabout production necessitates past saving or not, it certainly necessitates saving. The saving may be present saving of other members or classes of the community. Thus, the building of a factory for the manufacture of farm implements may be possible because the producers of wheat are raising more wheat than they can use, saving a part of the money derived from the sale, and investing this money in a company organized to manufacture agricultural machinery.

It will be advantageous to trace out in greater detail the interrelations of savers (who may or may not be laborers) and the laborers employed by the savings. The wheat raisers (assuming them to do the saving) produce wheat in excess of their own needs; they sell this excess on the market and it becomes a part of the stock[16] of usable wealth of the community. The money they receive may be regarded as so many *tickets* entitling them to draw from this stock a value equal to what they have put in. But they do not spend all of

[16] The concept here is that of a stock of wealth which is continually being drawn from and replenished.

this money in withdrawing consumption goods. A part of the money is saved. The saved money is invested in the stock or bonds of the agricultural machinery company (either directly or through the intermediation of a broker or a savings bank). The company then uses this money to hire labor to build its factory. The laborers employed to build, in spending their money for bread and other necessary or desired goods, are taking from society's stock and using up, the goods which the saved money represented.[17] While doing this, however, they have produced a factory.[18] Therefore the persons who did the saving and investing now have ownership in the factory instead of having had and enjoyed the other wealth which they might by now have consumed, had they chosen the alternative of not saving.

The same principle applies if, instead of adding new capital, the savers merely keep up the old capital. Thus, the owner of a shoe factory is

[17]On the hypothesis that the saved money is hoarded and not spent, prices will tend to fall, all the goods which the saved money represents may be consumed by others than the savers or their (indirect) employees, these others being able to buy more goods because prices are lower, and the stock of goods in society will not be increased by the saving. Then if, years after, the savers or their descendants endeavor to expend this money, prices will rise and the consumption of others will be curtailed. Those who have saved or their descendants or those for whose capital-producing labor they are paying, will consequently be securing consumable goods, not so much in direct exchange for the goods originally supplied by the savers to the social stock, as at the *expense* of other consumers of a later generation, at the expense of consumers who were not benefited by the original saving. (Cf. Davenport, *Economics of Enterprise,* New York—Macmillan—, 1913, pp. 338, 339).

[18] See Mill, *Principles of Political Economy,* Book I, Chapter V, §5.

supposed to get from it, during its life, besides interest on its value, enough to replace it when it is too old for further use. But this involves saving of a replacement fund instead of spending for current enjoyment the entire receipts from the factory. In like manner the machines used are supposed to yield, on an average, enough to replace their value when they are worn out or when improvements necessitate scrapping them. A part of the shoes produced may be assumed to be used, directly or through their equivalents in other goods, to maintain the labor occupied in factory and machine replacement. The situation is not essentially dissimilar when the owner of the machines decides to shift his investment. He then does not replace these machines but uses their earnings in a corresponding way to provide for the construction of a different kind of machines or of some other form of capital, having uses of another sort. Past accumulations, then, with the exception of stocks of consumable goods which, because of the requirements of convenience or because of the seasonal character of their production, must be kept on hand, take largely such forms as buildings, roads and streets, railroads, bridges and ships, and machinery. (They also take, in part, the form of political connections and other means of exploitation.)[19] The labor which is engaged in maintaining or in adding to any of this equipment is supported the more adequately because the accumulations of capital already made render industry more effective. Nevertheless, the

[19] See §3 of this Chapter (III).

support of this labor comes immediately, in large part, from current product.[20] And the keeping of some labor thus occupied in maintaining or in increasing equipment means that a part of economic society is devoting a part of its purchasing power to such ends instead of consuming as much as its possession—or receipt of purchasing power—would enable it to consume.

The discussion of saving and investing has thus far seemed to establish the conclusion that savings take form as equipment goods by being turned over to laborers who, while consuming goods of the value of the sums saved, are at the same time producing equipment. But the amounts saved and thus devoted to the production of production goods, are not paid over solely to laborers as wages. *They are also paid over,* in part, *to landowners* as rent for the use of land applied to the production of capital, and *to the owners of capital now in existence,* as interest, in payment for the use of this capital in the production of other capital. In short, the surplus production of goods which we have spoken of as savings, *is turned over to those who own or* (in the case of their own labor) *apply the various factors of production* and may be entirely consumed by these persons; but in due time there issues from the cooperation of these factors a stock of equipment goods of a value equal to the value of the savings consumed.

It appears, then, that roundabout production is gainful but that it involves provision of consumable

[20] Cf. Henry George, *Progress and Poverty,* Book I, Chapters III and IV.

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goods to those who are engaged in (whose labor or whose property is devoted to) such production. This means that the persons who provide present goods for the consumption of those engaged in roundabout production must themselves defer or forego, in some degree, present consumption. They must "abstain" from consuming all that they might consume. Hence, abstaining or *abstinence*[21] has been regarded as an element in capital construction, as a factor which must be taken account of in a theory of interest. It is to be recognized, of course, that a part of this abstinence may be undergone by the persons themselves who are engaged in roundabout production instead of by others who pay them, in which case those engaged in roundabout production come to be, to that extent, the owners of the capital they produce and claimants on its future yield. Evidently enough, addition to the capital equipment of society requires abstinence somewhere, and evidently, too, the mere maintaining of existing equipment, by replacing capital which wears out, involves abstinence from the consumption which might be enjoyed were such replacing not done.

Whether and how far the necessity of abstinence operates as a cause of interest must depend upon the extent to which it acts as a barrier to saving. If most of the people in the world—or in a relatively isolated community—were to abstain willingly from present consumption, devoting nearly all their productive effort to capital formation, the

[21] See Senior, *Outlines of the Science of Political Economy*, fifth edition, pp. 58-60.

supply of machinery and other capital would be large, the gain from further increase of it would presumably be small, and the rate of interest would be low. The theorists who have endeavored to explain interest by reference to abstinence have regarded abstinence as a sacrifice to induce which a payment must be made. They have not attempted to deny that some saving would be done even with no interest payment and, in some cases, have taken pains to assert that a certain amount of saving would nevertheless be done.[22] But they have urged that such saving is not enough to furnish all the capital that can be profitably used and that other capital can only be had by virtue of the receipt or expected receipt of a return upon it.[23] The "marginal" saver will not save unless compensated for so doing, and a man who would save something without interest will not save so much, will not save the "marginal"[24] dollar unless remunerated. When a person has already saved a considerable sum, has already denied himself a considerable amount of present income for the sake of larger future income, the better relative provision for his future than otherwise and the

[22] See, for instance, Carver, *The Distribution of Wealth,* New York (Macmillan), 1904, pp. 232, 233.

[23] Ibid, pp. 235-245. Böhm-Bawerk, misinterpreting Carver, makes the latter say that interest is the *result of* overendowment of the future (saving). See *Recent Literature on Interest,* translated by Professors Scott and Feilbogen, New York (Macmillan), 1903, pp. 56-62.

[24] "Marginal," above, means marginal when interest is paid. There would, of course, without interest or with it, be a margin of indifference, and hence a marginal saver and a marginal dollar saved. But the margins would be different.

poorer relative provision for present needs will tend to discourage further savings and to discourage them the more the greater are the savings which he has already made. As Professor Irving Fisher would put it, the time shape of his income stream (whether falling, level or rising) affects the individual's attitude towards saving, affects his degree of "impatience."[25] The millionaire does not have to practice abstinence, in the sense of making a sacrifice, to save large amounts. But marginal savings do involve sacrifice and will not be made without compensation. Interest, in this view, results from a shortage of savings, due to the fact that saving means sacrifice of present desires. We need not, here, defend the thesis that this sacrifice means "pain-cost." It suffices that there is a mental state which interferes with saving. In the fear that the word "abstinence" might connote pain-cost, some economists have preferred such terms as "waiting," "time-preference," or "impatience." The only essential fact for the purpose[26]—if it be a fact—is that when the choice is made between spending and saving, the saver—at least some savers for some of their saving—would choose to spend were it not for the interest. The disinclination to save, so far as

[25] Fisher, *The Rate of Interest,* New York (Macmillan), 1907, pp. 95-98. Professor Fisher, however, will admit the abstinence theory only if abstinence be not regarded as a cost (Ibid, pp. 43-52).

[26] It is, however, interesting to note that Böhm-Bawerk, criticizing Marshall, and endeavoring to imagine a case in which there could be no "sacrifice" of abstinence, succeeded in imagining one in which the only possible *comparison* was of present *labor* and future *commodity.* See *Recent Literature on Interest,* pp. 41 and 42, footnote.

there is such a disinclination, can be in large part accounted for by the fact that, when choosing between present and future expenditures, the moment of choice is the present. When the future becomes the present and the observation of the two (if two) significant dates is made backwards in time, it may well be that there will appear to have been a "sacrifice" made if and when earlier consumption was preferred to later (now present consumption), even though such a choice seemed the desirable one when made. If, today, it causes regret—though it may not always do so—to plan for next year's instead of today's enjoyment, so, when next year becomes this year, it may cause us regret to realize that we chose to have our enjoyment last year and, therefore, can not have it now.

We should not hastily conclude, however, if and because there are some who will not save except at a high interest that high interest has, in general, the result of stimulating saving. That it does have this result has commonly been assumed by economists and is not here denied, but the certainty of its doing so is nevertheless to be questioned. There are undoubtedly some persons who would save more at a rather low rate of return on capital than at a somewhat higher rate.[27] Let us consider the case of a man who wishes to leave to his descendants an income of $5,000 a year, which, in his view, will be sufficient to their needs. If interest is 10 per cent, an accumulated capital of $50,000 will be sufficient

[27] See Cassel, *The Nature and Necessity of Interest*, pp. 146-148.

for his purpose. But if interest is 5 per cent, it will be necessary for him to save $100,000 in order to leave the desired income to his family without the necessity of their at any time trenching on the capital.[28] He might actually save $70,000 and have to expect some using up, by his family, of the saved funds.

That more saving would result or that as much saving would result from lower interest as from higher seems, however, not probable. In the first place, it is fairly likely that a person who would save *$100,000* when interest was 5 per cent, that his family might have a $5,000 income would save *more than $50,000* if interest were 10%, considering the extra income which his family might thus secure as more than compensating the smaller relative sacrifice. Reversing the form of statement, we may say that few persons probably would, because of a lower interest rate, save an enough larger sum to yield the same annual income as they would expect to provide if the rate of interest were higher. There is, indeed, reason to doubt whether the average person would save as much in expectation of low interest as if there were prospects of large gains from the saving. Saving for old age and the saving which is done

[28] It should be unnecessary to point out that, even if this attitude were general, there would be a limit to the amount actually saved, and a rate of interest would result dependent upon the relation between the advantages of the use of capital and the disposition (or lack of disposition) to save. Though the supply curve of capital or waiting should slope backward, there would still, presumably, be some point of intersection with the demand curve, at which point interest would be determined.

through life insurance companies, would yield less return on the same investment. But let us consider the usually larger savings of those who endeavor to provide for their families permanent funded incomes. Will this type of saving not be discouraged? If we assume as an extreme limit a zero rate of interest, we have an hypothesis of a condition under which no return would be yielded on anything less than an infinite sum saved.[29] With no funded income within the realm of the attainable, might not some who now save large amounts, give up the idea of funded family fortunes, and live for the pleasures of each passing day? And in lesser degree might not a very low return, say 1 per cent, have a corresponding kind of effect?

In the second place, the possibility of interest being realized carries with it a sort of selection. Those who have the disposition to save soon find themselves realizing interest on their savings and thereby acquire additional ability to save. Those who have not the disposition to save are less likely to gain additional ability to save. The higher interest becomes, the more saving can be done by those who wish to save, and this fact suggests the likelihood of greater aggregate saving at higher interest than at lower.[30]

[29] Mathematical processes give zero times infinity as indeterminate.

[30] Some one may reply that a higher interest means less capital, a lower productivity and hence lower wages, with decreased saving power of wage earners, even of wage earners who are most ambitious to save. But such an argument would entirely miss the point. The discussion above in the text has to do with the effect of interest on saving and calls attention to the fact that, other things equal, higher

In concluding this discussion it may not be amiss to call attention to the fact that the conditions necessary to induce saving might be very different in a socialist society in which private ownership of the means of production was prohibited than in an individualistic society. If saving is to take place in a democratically governed socialistic society, it is necessary that a *majority* be in favor of it. They must be willing that part of the society's current labor shall be devoted to the production of equipment for future needs even though the volume of goods available for current consumption is thus lessened. Where, on the other hand, saving is done by individuals, there will be *some* saving even if only one person out of ten or one person out of a hundred is willing to defer consumption.

interest means more saving in so far as it may add to the saving power of those who have the saving disposition. The criticism in question—if made—approaches the relations discussed, not from the direction of the effect of interest on saving, but from the direction of the effect of saving on interest. It assumes that the high interest which is, in the text, spoken of as probably a *cause* of *saving,* is a *result* of *lack of saving* and therefore of *lack of capital;* whereas for the problem under discussion the high interest which stimulates saving must be held to result from inventions or some other interest-raising cause not connected with a dearth of saving.

It may be admitted, in passing, that those who save are not always doing the wise thing nor those who spend, the foolish thing. Saving which is at the expense of good food, fresh air or rest, may diminish a man's working efficiency by more than the interest or earnings of the capital saved. It may, in some cases, make future saving more difficult than if the first saving had not been done. But we should hardly conclude that the great bulk of sums saved involve such offsetting losses.

§ 6

Summary

In this chapter our endeavor has been to discover the ultimate causes of interest, without, however, attempting an explanation of how these forces cooperate or how the exact rate of interest is determined. By way of preliminary, the factors of production were said to be land, labor and capital. We chose to include the work of the entrepreneur or enterpriser in the category of labor. Capital, it appeared in the course of the chapter, is not an ultimate factor of production but can be resolved into other factors. If we so resolve it, our ultimate factors are land, labor and waiting (or saving). The owner of land receives rent, the owner of capital receives interest (the return on waiting or saving), the laborer receives wages.

Capital is produced by labor applied to or on land, usually with the assistance of previously produced capital. Analysis showed that the advantage of using capital in production is really an advantage of applying available factors of production in a longer-time rather than a shorter-time process. Since capital is a derivative factor, we may, bearing in mind that labor is applied to or in cooperation with land, say that the advantage of using capital is an advantage of applying labor so as to bring a relatively remote reward as compared with applying it so as to secure a relatively early reward. Greater roundaboutness of production may mean the lapse of a greater period of time between effort and the enjoyment

of its results or it may mean an increase of the proportionate amounts of effort and of land the use of which is directed to securing comparatively distant gains.

It should be again emphasized, at this point, that capitalistic production is not always socially beneficial production and that capital is not always material technological equipment. The production of adulterated foods may be carried on capitalistically. And not only well-deserved goodwill, but also public favor due to sedulously propagated misinformation and governmental encouragement due to selfish political activity or even to bribery, may constitute part of a concern's capital. The seeking of such favor or encouragement means engaging in roundabout production. Nevertheless, though capitalistic processes *may be* anti-social and the returns received may be therefore unearned, it does not follow that such *must be* the case. In an ideal economic society, all such anti-social methods of wealth getting would be effectively prohibited and in such a society, therefore, no one could derive income from capital without so using it as to give a corresponding service to the community in return.

That all possible kinds of capital, and, therefore, all possible roundabout productions, yield a surplus over direct production was not asserted. But there seem to be enough roundabout applications of labor which do yield, or at least promise, a surplus over direct production, to occupy more of our effort and attention than we are willing to devote to the securing of deferred rewards. Nevertheless, roundabout production appears to yield less the farther

it is extended. There is, in this regard, a law of diminishing returns. To increase indefinitely the amount of labor and land devoted to capital production will not proportionately increase the gains from the use of capital. There comes to be a relative superfluity of capital. Nor, apparently, can the durability of capital instruments be indefinitely increased with indefinitely increasing advantage.

To say that roundabout production involves waiting is equivalent to saying that capitalistic production involves saving. In roundabout production capital is an intermediate stage between effort and its rewards. The production of capital and likewise its maintenance requires waiting or saving, requires a refraining from the present consumption which would otherwise be possible. The older economists spoke of this refraining as *abstinence.* Some modern economists speak of it as *waiting.* Others refer to *time-preference* or to *impatience.* Impatience or preference for present income over future income is not universal. The man whose present needs are fully supplied and who anticipates a needy future may definitely prefer future income to present. Even without prospect of surplus gain, many persons may eagerly save for old age or to provide funds for the support and education of their children who may become orphaned. But it is asserted that the sums saved would be less than they are were no surplus return securable by saving. The argument to this effect may not seem to everyone absolutely convincing. There may indeed be persons who would save more at a lower interest than at a higher.

On the whole it seems probable that the lure of a return on accumulated wealth is a real influence in increasing the amount of such wealth and that saving would be much less, the amount of capital less and, therefore, the amount of roundabout production less, if saving and roundabout production did not pay. However this may be, it seems clear that roundabout production does yield a surplus, that the amount of saving men are willing to do has not been sufficient to reduce the marginal gain or surplus to zero and that interest is an important fact in modern business life. The way in which capital productivity and the indisposition to save indefinitely, work together to produce a *rate* of interest will be considered in the next chapter.

CHAPTER IV.

THE RATE OF INTEREST

§ 1

The Choices of a Crusoe

Before considering in detail the working out of the forces determining interest in modern society, let us ask how these various forces would act upon an islanded Crusoe. The Crusoe of the story begins his isolation, not absolutely without capital, since something is saved from the wrecked ship, but with comparatively little capital. As he has leisure from the activities necessary for present support of life, he devotes himself to making equipment for his continued existence on the island. He builds himself a house, cuts a boat out of a log, makes himself bow and arrows, accumulates a herd of goats, and in other ways prepares himself against the contingencies of the future. To do this, he has, of necessity, either to lay aside a store of food for use while producing equipment or to devote a part of his time each day or week, while producing the equipment, to the production of necessary food. In either case he may be said to use part of his labor for purposes other than the satisfaction of his immediate wants, to practice abstinence in not immediately consuming all that his labor produces, to save or accumulate the results of a part of his labor against the possibilities of future use. And in either case this saving takes, eventually, the form of buildings, tools, flocks and herds, orchards, etc.

In accumulating these various kinds of equipment, Crusoe uses a roundabout rather than a direct method of satisfying his later needs. He might get along by consuming such sea food as he could find, in various depressions and crannies, after the outflow of the tides. He chooses rather to deny himself some immediate satisfactions in order to make a net and fishing lines. He might plan to use the net and lines from the shore or by wading out in the water. Instead he prefers to sacrifice, in part, the early income thus securable, and to devote some of his time to building a boat. He might hunt all over the island for a goat to kill, whenever he was hungry for meat. He chooses, however, to make the sacrifice, early in his islanded life, either of consuming less meat or of spending more time in goat capture, so that, later, a minimum of labor may provide him with a maximum of meat. For a like reason he builds fences to keep his captured goats from escaping.

In all this turning of labor to remote ends there is presumably some gain. But we may fairly assume the most important, the most advantageous capital to be constructed first. It is important to have a net, less important but still worth while to have a boat. Likewise, progressive improvements in the quality of the tools and buildings required, have progressively less and less importance. Crusoe must, therefore, decide at what point he no longer cares to make present sacrifices for the larger but larger-to-a-decreasing-degree, future gains. At the beginning, having little accumulated capital to work with, Crusoe has to devote much of his time to supplying present

necessaries. He can devote little time to producing equipment, just because he has but little equipment to work with. For the same reason the time he is able to devote to producing equipment does not provide him with any large amount of it. But roundabout production is of the greater relative advantage to him so far as he can carry it on, just because he can afford to resort to it so little; and this large per cent gain may tempt him to forego present consumption almost as far as he possibly can do so. He practices abstinence, abstaining, so far as he can, from present consumption, for the sake of the gains to be realized by so doing. When he begins to realize these gains, to enjoy the larger production which his equipment makes possible, or to produce the old necessities in less time, he will be able to spare more time for the further elaboration of tools; but the per cent gain from so doing will be reduced. With his already accumulated tools, Crusoe's labor directed to providing immediate satisfactions is now much more effective than formerly. More or better tools might result in further gain but the gain becomes progressively smaller.[1]

But in all this, though we have influences of the kind which bear upon the rate of interest, we do not have a problem of interest such as exists in modern society. A Crusoe may, indeed, compare

[1] Probably the rational thing for Crusoe to do, if he expected no one to follow him, would be to wear out gradually, as life drew to a close, the accumulated equipment of early years; but if he could hope to be succeeded by descendants, or others in whose welfare he would feel deeply concerned, there would be reason in his keeping up his equipment to the last.

present goods and future. He may determine that his home is the equivalent of a certain amount of food. He may give up certain enjoyments to secure it, thus showing that he regards it as preferable to those enjoyments. In a sense he values it in terms of the kind of enjoyments sacrificed. But there is lacking an alternative which exists in organized society as we know it and which has considerable significance, the alternative, that is, of devoting himself to producing either present or future goods and securing the other type of goods by exchange. He may produce the one type of goods or the other, and he may determine how much of the one type he will have and how much of the other and when it no longer seems worth while to devote an extra hour to the one purpose to the exclusion of the other purpose. But he cannot take advantage of his own specialized skill and that of another, to devote himself to one line of production and trade the results for the products of another line. There is not open to him, isolated as he is, the opportunity to make capital for the use of others who have not saved, when he has accumulated so much for his own use as to have little to gain from the production for his own use alone of more. In other words, he cannot devote himself entirely to production for the future, e. g. to making a boat, and expect to trade the results of his labor for present income, e. g. fish. Neither can he, if he would have any tools of production, devote himself entirely to producing consumable goods and trade these with anyone else for production goods. Could he do these things, the rate at which he would trade the one

kind of goods for the other might well be influenced by his alternative of himself producing the other. Thus, the rate at which he would exchange consumable goods for capital might well be affected by the alternative of his producing that capital. There are, of course, points of similarity in the position of a Crusoe and a man who is part of an industrial society, but it seems nevertheless necessary, fully to explain the phenomena of interest, to consider the rate of interest in the light of the various possible exchanges and alternatives which have a bearing upon it. In particular, we shall examine the bearing, on the rate of interest, of the productivity of capital and of impatience or the indisposition to save.

§ 2

The Demand for Present Goods

Indirect or roundabout production differs from direct production in that it requires waiting. Therefore the surplus of relatively roundabout production, at the margin beyond which it has not been carried, over what the same labor would yield if directly applied, we may term the marginal product of waiting. Thus, if a given amount of labor can yield an immediate product of 100 or can, by being stored in capital, yield a product one year later of 110, then the surplus product, 10, may be spoken of as the marginal product of "waiting." If we measure waiting by amount of gratification postponed and duration of postponement,[2] we may

[2] Suggested by G. Cassel, *The Nature and Necessity of Interest*, London (Macmillan), 1903, p. 42.

say that the marginal product of waiting is, in this case, 10 per cent. In practice, roundabout production involves the cooperation of later labor with the capital which earlier labor has produced. Hence when we suppose that labor turned to roundabout production will produce (say) 10 per cent more than the same amount of labor turned to direct production, we do not mean that this year's labor, for example, will produce capital which, a year later, and without any co-operation of further labor with it, will yield a product 10 per cent larger than could have been produced directly. We mean, rather, that if the "center of gravity" in time, of the receiving of the product of the labor, is a year later than the time center of gravity of the putting forth of effort, the product will be 10 per cent larger than if it is received currently with the application of the labor. To illustrate, suppose that labor is put forth daily for three years but that for the first two years no consumable return is derived, the return being realized throughout the third year, during which the capital produced is operated and wears out. The time center of gravity of the labor would then be a year and a half from the beginning of the process and the time center of gravity of receiving the consumable return would be two years and a half from the beginning. The return may therefore be said to be received a year later than the labor is put forth.[3] And if

[3] See Böhm-Bawerk's explanation of an "average production period," *The Positive Theory of Capital,* English Translation,

this return is 10 per cent larger than could have been secured by carrying on direct production and getting consumable goods currently throughout the three years, then the marginal product of waiting may be said to be 10 per cent. In the abstract discussion which is presented in this and the next few sections of this chapter, the expressions "this year's labor" and "present labor" may be understood to have reference to labor of which the time center of gravity is in the present, and expressions relating to "present goods" or "next year's goods" may be also interpreted in terms of a time center of gravity.

We have seen that roundabout production yields a surplus over direct production. By so doing it affects simultaneously the rate of interest and individual rates of impatience (rates of preference for present goods over future goods). We shall see, as we proceed, that it does not affect the former primarily by first determining the latter. To show how greatly the productivity of waiting can influence interest, let us assume that indirect production could be indefinitely extended without reducing the reward of marginal waiting below 10 per cent. Then the rate of interest could not be less than 10 per cent, nor could individual rates of impatience be less, and the marginal productivity of waiting might be said, in so far, to determine both. It determines interest by affecting both the demand and the supply sides of the market. It determines impatience by causing the

London (Macmillan), 1891, p. 89. Cf. Jevons, *The Theory of Political Economy,* fourth edition, London (Macmillan), 1911, pp. 227-229.

adoption, to a considerable degree, of roundabout production, and therefore making present income relatively scarce and future income relatively abundant. Thus impatience is increased.[4]

Putting the matter in terms of demand for and supply of present goods, we may say that if the indirect method would yield continuously, and even though indefinitely extended, a 10 per cent surplus, then a rate of exchange of less than 110 of next year's goods for 100 of this year's would mean a demand for present goods in excess of the supply. On the demand side, if the marginal product of waiting is equal to 10, the possibility of getting 100 of present goods for 105 of next year's goods, would mean a greater demand for the present goods than if the marginal product of waiting were but 5. For all those classes of persons, *e. g.*, spendthrifts and necessitous persons such as laborers, who, in effect, habitually buy present goods with future, would have, with the higher assumed productivity of the roundabout methods at which they are engaged or to which they can turn, more future goods to offer for present. At a rate of exchange of 105 future for 100 present, they would, in producing 110 future and buying 100 present, have 5 of future, *i. e.*, next year's goods, left over with which to demand more present goods; whereas if roundabout production were only 5 per cent superior, this surplus demand for present goods could not exist. Thus, with a marginal productivity of waiting equal always to 10 per cent,

[4] See Böhm-Bawerk, *Positive Theorie des Kapitales,* Dritte Auflage, (Innsbruck), 1912, p. 468. Cf. Fisher, *The Rate of Interest,* New York (Macmillan), 1907, pp. 186, 187.

necessitous wage earners, if they received 100 of present goods for every 105 of next year's goods produced by their work, might be said to demand more present goods than if the marginal productivity of waiting were only 5 per cent. For in the former case they still have a future product of 5, after getting 100 in present goods, for which surplus 5 they demand a further quantity of this year's goods. We may therefore assert that the higher is the marginal product of waiting and the more slowly this marginal product declines with increased quantity of waiting, the greater will be the demand, at any given price or value in future goods, for present goods. This is a use of the term "demand" analogous to its use in the theory of price and value. Unfortunately, economists are apt, in such discussions as the present, to use the terms "supply" and "demand" loosely and without careful analysis.

It should be observed that this greater demand for present goods, at a rate of 105 of next year's goods for 100 now, due to the 10 per cent superiority of indirect production, is not, necessarily, brought about through any effect on impatience. The greater demand for present goods at any rate of interest less than 10 per cent may be due directly to this superior productiveness of the capitalistic method, or, if we use Böhm-Bawerk's phrase, to the technical superiority of present goods. Let us suppose, for illustration, a man who must have 100 this year in order to maintain life. He does not possess it and if he cannot borrow it, will have to produce it. But if he can borrow it he will then be in a position to turn his attention towards

roundabout production, which, otherwise, he could not possibly do; and he will therefore be able to produce 110 a year later with the same labor required to produce 100 this year. Will he not, if interest is 5 per cent (or anything less than 10) be very glad to get 100 of present goods and so be able to produce 110 a year later? Yet this will not of necessity be due to his impatience. He may be a man who, were any other way possible of getting the 110 next year, would refuse to borrow 100 even at only one per cent interest. He may have so little impatience that even an income stream rising at such a rate as 10 per cent, would not induce him to seek present goods for future. He may have a zero rate of impatience, if not a negative one. If he borrows 100 for this year's use, in order that he may work hard at roundabout production when otherwise he would do an equal amount of work in securing 100 in this year's goods, it certainly cannot be said that he borrows in order to provide for present needs out of future abundance, for his present needs are *no better provided for* than if he did not borrow. He works just as hard and has this year no greater income. The fact is *that such a man does not borrow because he is impatient and wants more present income at the expense of his future.* In borrowing, he really is not comparing this year's 100 with next year's repayment of 105, for he could get this year's 100 for the work he is in any case doing. He is comparing the 110 which roundabout production will yield him next year, with the 105 of next year's goods (or anything less than 110) which he must pay for the 110. *He is comparing*

two futures, rather than a present and a future.[5] He is going to have 100 this year whether he borrows or not. He is going to do a given amount of productive work this year whether he borrows or not. If he borrows he simply makes the difference between 110 and what he has to pay next year for the loan. In what possible sense can it be said that he borrows only because he is impatient?

Here we may note an error in Fisher's criticism of Böhm-Bawerk, though one which appears to lurk in the latter's own presentation of his theory. Professor Böhm-Bawerk in his *Positive Theory of Capital*[6] has a series of tables illustrating the technical superiority of present goods, the point being that early goods are to be preferred to later because they make possible more roundabout production, *e. g.*, to use the figures of this article, that 100 this year is preferable to 100 next year, because 100 this year makes possible 110 next year, through the adoption of roundabout processes. Fisher's argument is, in effect,[7] that 100 now would be no better than 100 next year, if man were not impatient, because 100 next year would make possible 110 year after next; that as much would be enjoyed eventually, and so if one did not mind waiting, either option would be as good as the other. Professor Fisher's statement[8] is that "the only reason any-

[5] Cf. Böhm-Bawerk, *Positive Theorie des Kapitales,* Dritte Auflage 1912, (Exkurse), pp. 406-409.

[6] *The Positive Theory of Capital,* English Translation, London (Macmillan), 1891, pp. 262-269; Dritte Auflage, 456,466.

[7] *The Rate of Interest,* pp. 58-71.

[8] Ibid., pp. 70, 71.

one can prefer the product of a month's labor invested today to the product of a month's labor invested next year is that today's investment will mature earlier than next year's investment." In view of what has been said in the foregoing pages, it seems to the present writer that this criticism really fails to meet the essential point of the argument. So long as 100 this year makes possible 110 next year, many persons will be very anxious to get the 100 provided they do not have to pay back quite all of the 110. Their total income will be larger and not merely earlier because of such a choice. A proper comparison of the two options begins *with the present in both cases,* not, as Professor Fisher would have us believe, a year later in one case than in the other. In either case, income and work would begin with *this year.* In the one case the loan of 100 would make possible beginning the more productive indirect method at once. In the other case the first year would have to be spent in the use of the less productive direct method. All question of impatience aside, the first choice would be preferable to the second since it would yield during any given period, a greater total result.[9] Nevertheless it must be admitted that Böhm-Bawerk's tables do not all consistently express this view.[10]

[9] See Böhm-Bawerk, *The Positive Theory of Capital,* English Translation, p. 271; Dritte Auflage, p. 469. See also Exkurse XII, in answer to Fisher's criticisms.

[10] Thus, in the tables beginning on page 266 (English translation), Böhm-Bawerk selects for comparison the maximum value incomes derivable from earlier and later labor even though this means comparison of an income received in 1890 from labor availa-

Professor Fisher, in attempting to show that all loans are really made to provide present income for those who desire the loans, even if they are so-called productive loans, assumes the case of a business man who borrows to make an investment and who has the three options of not investing, and of making the investment by sacrificing part of his early income for the sake of later or by borrowing so as not to have to sacrifice early income.[11] But in our example above described, the borrower has but the first and third of these options. If he cannot borrow, he cannot invest, that is, he cannot choose roundabout production. It cannot be said, therefore, that he borrows to supply present needs, and it cannot be said that borrowing, in general, is necessarily a means of providing the present at the expense of the future, but that there really are, contrary to the viewpoint of Fisher,[12] productive loans in the sense in which economists have used that expression. Impatience is only one cause, and perhaps a minor cause, of the demand for present goods.

In concluding, now, our analysis of the demand side of the market in so far as it shows a tendency of productivity of waiting to keep interest up, may we not state a quantitative result? Assuming that the marginal productivity of waiting, however far extended, is 10 per cent, and that the supply of

ble in 1888 with an income received *in 1893* from labor available in 1889.

[11] *The Rate of Interest,* pp. 246-251.

[12] Ibid., p. 251.

present or early goods is not unlimited, may we not assert that *at a rate of interest appreciably less than* 10 *per cent, the demand for present goods or relatively early goods, must exceed the supply?* For even those who are not by nature so *impatient* as to purchase present goods for future at that rate will nevertheless purchase present or comparatively early goods, that they may extend the amount or the time of indirect production and reap a gain in so doing.[18]

§ 3

The Supply of Present Goods Offered for Future Goods

On the other hand, a high marginal productivity of capital or of waiting tends to decrease the supply of present goods, at any given price in terms of future goods. Thus, with the marginal productivity of indirect production 110, however far extended, as against 100 for direct, nobody would supply

[18] The contention is sometimes made by productivity theorists that increased productiveness of capital must be assumed to raise the rate of interest *because* value is relative and *all* values cannot go down (Seager, *The Impatience Theory of Interest,* American Economic Review, December, 1912, pp. 834 and 835). Even though the supposition be made, for greater clearness of exposition, that the quantity of money and credit keeps such a relation to goods as to maintain an unchanging general price level, such an argument is hardly sufficient. For the impatience theorist might still argue that the value of capital would go up and the value of consumable goods down because of the increased capital productiveness, and that interest would not rise. Some such argument as is presented in this chapter is believed, therefore, to be essential if the problem is to be anything like completely analyzed.

present goods at all if offered a price of only 105 in next year's goods for 100 present. If roundabout production yielded less, say 4 or 5 per cent, such an offer might bring out a supply of present goods. But with roundabout production yielding a 10 per cent yearly surplus, it would not be worth while for any one to produce present goods at all in order to make such an exchange. Rather than produce present goods to the amount of 100 and exchange or sell them for 105 of next year's goods, any producer would prefer to get, by the indirect method, 110 of next year's goods. We may put the matter in a somewhat different way if we first call attention to the fact that wages are paid, in the first instance, neither in present consumption goods nor yet in future goods (durable capital) but in general purchasing power. The amount that an employer has to pay in wages will, presumably, be the same whether he employs his men in direct or indirect production, in producing present or future goods. But if employing them in indirect production will yield 110, no employer is going to pay the same wages for present goods of 100, and then supply these goods for the equivalent of 105 in the goods of a year later. An employer will either receive for his 100 a purchasing power over 110 of next year's goods, or he will have next year's goods produced instead of present goods. It appears, therefore, that if indirect production can be indefinitely extended with a surplus return of 10 per cent, any appreciably less rate of interest than 10 per cent would certainly mean a supply of present goods less than the demand. Therefore

a rate of appreciably less than 10 per cent could not continue.

It is worth while calling attention again at this point to the fact that we are dealing here with an independent cause of interest other than impatience. It is not, in our example, because those on the supply side of the market are impatient, that they will not dispose of 100 present goods for less than 110 of next year's goods. It is rather because nature or invention or, more properly, both, gives them the option of getting the 110 next year, through their own present efforts, if they will, instead of by lending or selling present goods for future. Is a man impatient because he will not accept 105 of next year's goods when he may, by the same present effort, get 110? The choice is between a smaller future income and a larger, not between a present and a future income. How, therefore, can impatience be said to be involved as the cause? Impatience or time preference is a state of mind relating to present compared with future goods; not related to future compared with other future goods.

The above argument shows, it is believed, that productivity of capital has both a direct and a proportionate effect upon the rate of interest, if by productivity we here mean surplus productivity over direct production. To double the surplus productivity of any one instrument of capital would not, of course, appreciably affect the rate of interest, because it would mean but a slight change in the market conditions of supply and demand. The increased supply of products or uses would, if the capital were itself produced by

labor, merely lower their price in relation to other goods. But permanently to double the surplus productivity of capital in general, in other words to double the marginal product of waiting and to keep this marginal product, however great the increase of waiting, double what it has been, would, and must, not less than double the rate of interest. For if the surplus marginal productivity of capital were changed from 10 to 20 per cent, no one would any longer, however low his impatience, consent to lend or invest present goods for 10 per cent. Rather would he adopt indirect production and realize 20. His refusal to accept 10 would not be due, necessarily, to his impatience but directly to the fact that he has now a better option than before. The assertion that[14] "to raise the rate of interest by raising the productivity of capital is, therefore, like trying to raise one's self by one's own boot-straps," hardly gives a true account of the situation even though only a direct and not an indirect effect is denied. Neither is it convincing to state that[15] "an increase of the productivity of capital would probably result in a decrease instead of an increase, of the rate of interest," and that "to double the productivity of capital might more than double the value of the capital," unless by productivity is meant productivity in general and not merely the surplus productivity of indirect

[14] Fisher, *The Rate of Interest*, p. 15.

[15] Fisher, *The Rate of Interest*, p. 16. But it is only fair to state that Professor Fisher's elaborated theory gives considerable emphasis to productivity as an indirect cause working through impatience.

production. As a matter of fact to double the surplus[16] marginal product from 10 to 20 and keep it so, would very decidedly not double the value of capital. For no one, however low his impatience, would be willing to give more than 100 in present goods for 120 of next year's goods when the labor necessary to produce the present 100 would be sufficient to produce the deferred 120. It is true that such an increase of productivity as we have assumed might, when it had greatly increased wealth, tend to reduce impatience and therefore, eventually, to make possible an extension of indirect production to where the marginal product of waiting was a smaller amount than before. But unless and until it did this, the greater productivity could not possibly result in a decrease of the rate of interest. And it is certainly not true as Professor Fetter would have us believe, that a theory which asserts productivity to be an independent, direct cause and determinant of interest must assume a rate of interest in its premises and so involves a begging of the question.[17] It starts with a rate of interest only in the sense that it starts with a rate of productivity which in large part determines the rate of interest. Even the productivity theorist who asserts, flatly, that interest will be 20 per cent if a capital of 100

[16] If the surplus marginal product is 10, the total marginal product of capital is 110. To double this would make it 220, increasing the surplus marginal product, or the marginal product of waiting, to 120.

[17] See, for example, Professor Fetter's critical article, *Interest Theories, Old and New,* in the American Economic Review, March, 1914, especially page 90.

produces on the average, at the end of a year, an income of 120, though his analysis may be incomplete, is not, perhaps, fundamentally in error. For it is not necessarily true that a person values his capital at 100 only because, having an impatience of 20 per cent, he discounts the expected income at a 20 per cent rate. On the contrary, he values his capital at 100 because the amount of labor necessary to produce it, *i. e.*, necessary to get a final result a year later, of 120, is just equal to the amount of labor necessary to get 100 right away. He does not value the capital at more than that, *i. e.*, will not give more than that for it, because he has the option of always being able to get it at that price or value in terms of labor. The sum 100 may properly be called its cost of production. In this sense it is fair to say that interest is 20 per cent if and because a capital of 100 will produce income at the end of a year, of 120, or will produce 20 a year. We may say that a person's valuation of capital, along with the valuations of other persons in like situation, is less the direct result of a previously existing market rate of interest, than it is, by affecting his and their attitude towards the market, a determinant of the rate of interest.

We are prepared, now, to see more clearly than before the importance of the distinction between land and made capital. Land is already present. For the most part there is no balancing of choice as to whether or not we shall produce it. Its value depends upon its expected future benefits and the rate of interest or impatience at which they are discounted. But there is the option, during any period, of producing more or less of other capital,

turning towards or away from roundabout production. The value of this other capital is just as much dependent upon its cost of production, in the sense above explained, as upon any independently existing rate or rates of impatience. The possibility of getting a larger product of labor, a surplus over the reward of direct production, by applying that labor indirectly, with, as an intermediate step, the use of "produced means to further production,"[18] will tend to prevent enterprisers and others from accepting any less surplus as interest on loans or on purchase of goods already produced. This possibility will therefore, in so far, tend to fix the rate of interest and of discount.

Does impatience then enter nowhere into the chain of cause and affect? It does enter, but, in the connection to be now emphasized, as effect rather than cause. The marginal productivity of waiting, if 10 per cent regardless of extension, will directly influence supply of and demand for present goods in such a way that, at any lower interest rate than 10 per cent, supply will fall short of demand. It is also true that a marginal productivity of waiting, of 10 per cent, will cause rates of impatience to be correspondingly high. The supply of and demand for present goods, and hence the rate of interest, is one chain of effects following from the marginal productivity of waiting. The comparative deprivation of the present and endowment of the future and the consequent high rate of impatience, constitute another chain of

[18] Phrase used by Seager, *The Impatience Theory of Interest*, American Economic Review, December, 1912, p. 846.

effects. We are here dealing with common effects of a joint cause, not with a single chain of causation.

§ 4

Demand for and Supply of Present Goods Further Considered

On the other hand, still assuming a marginal product of waiting equal to 10 per cent, and assuming now that it does not become greater than that even with indefinite decrease of roundabout production; then at a higher rate of interest than 10 per cent, we should expect to find demand for present goods less than supply. If the rate of interest were 15 per cent, that is if the price of present goods in terms of future were 115, comparatively few persons would be willing to buy present goods. Why offer 115 of next year's goods for 100 of this year's when 100 of this year's can be produced by the direct method in the same time that it takes to produce only 110 of next year's. There might be persons of spendthrift habits and no trustworthiness who would be willing to promise almost any price in future goods in order to get 100 in present goods. But such persons could not be relied on to pay the price and, therefore, are not really in the market. They have a desire rather than a demand. There might be a real demand for present goods at a 15 per cent rate from persons of spendthrift proclivities who, by past accumulations or by inheritance of capital, possessed the means to pay. But such persons would soon eliminate themselves as factors in the

problem, and even while they were in the market, conditions of supply would keep interest down to about 10 per cent. The great mass of consumers would not be in a position to give, as a rule, more than 10 per cent. Most of them are wage earners and in many cases they have little security to offer. They buy present goods, in effect, with the future goods their labor produces. That is their chief and in many cases their only means of purchase. If the same labor which produces 110 of next year's goods by the indirect method, would produce directly 100 of this year's, they would not bid for the 100, an amount equal to 115 of the goods available a year later. Rather than do this, they would seek employment producing directly this year's goods and so avoid the 15 per cent interest.

Looking at the matter from the supply side, we may say that a rate of interest of 15 per cent when the marginal product of waiting is 10 per cent, would almost certainly result in a supply of present goods in excess of the demand. For no one would produce 110 of next year's goods, however little impatient he might be, so long as he could produce with the same labor, 100 of present goods and sell them for 115 of next year's. No one would hire labor to produce 110 of next year's goods when for the same wages he could hire them to produce 100 of this year's and could sell this 100 for 115 of next year's. In short, at a rate of interest of 15 per cent, the supply of present goods would exceed the demand, by the turning of quantities of labor from indirect to direct production, until the large amount of early income and the scarcity of future income, lowered interest and

impatience to 10 per cent. The influence of supply would keep interest as low as 10 per cent for all those able to give security and therefore really in the market, unless mankind were so little thrifty that no amount of turning production to the direct method, no possible stocking of the present and deprivation of the future, could keep their impatience down to 10 per cent, the assumed productivity of waiting. In such a world or such a community, there soon would be no indirect or capitalistic production, but a mere living from hand to mouth; and there could be no loans except the so-called unproductive loans.

We may conclude, therefore, that by acting on the supply of present goods and the demand for them, the superiority of roundabout production tends to keep interest down to as well as up to the marginal productivity of waiting. Interest to those really in the market (because able to give security), cannot go above this per cent so long as a community is thrifty enough to use any degree of indirect production, and is therefore able to increase present goods and decrease future by turning more largely toward direct production. And it cannot go below this, so long as a community has still not reached an impassible limit of indirect production but is yet able to turn more labor toward indirect production or to make the method of production still more roundabout,—to increase either the amount or the time, of waiting.

Assuming, therefore, a constant marginal productivity of waiting, equal to 10 per cent, and a rate of impatience affected by the shape of the income stream, this rate of impatience, as well as the

rate of interest, will adjust itself to the rate of productivity of waiting. On the other hand, were we to assume a constant natural rate of impatience regardless of changes in the income stream, and at the same time a productivity of waiting decreasing with the extension of indirect production, *then the marginal productivity and the rate of interest would adjust themselves to the impatience.* In practice, doubtless adjustment takes place both in marginal productivity of waiting and in impatience, but the influence of productivity has, it is believed, an importance which we are not likely to overemphasize.

In a modern community production is capitalistic to a great degree. It would be possible to make it capitalistic to an indefinitely greater degree with continuing gain in productiveness. We are little interested in the theory of how interest might be fixed in a community where the general rate of impatience is too high to permit any accumulation at all, or in a world where further extension of indirect production is impossible. In our existing civilization, the fact that capitalistic production could be much further extended, with, for a long time at least, a surplus gain, is of tremendous importance. It means that no amount of accumulation can be expected to reduce the rate of interest to zero.[19] It means that the marginal product of waiting is one of the most important factors in fixing the rate of interest, worthy of the emphasis which the marginal productivity theorists have

[19] Cassel, *The Nature and Necessity of Interest,* London (Macmillan), 1903, pp. 156, 157.

given to it, and that any theory which does not give large emphasis to this determining influence acting simultaneously on impatience and interest is either inadequate or misleading or both. It means that if the productivity of waiting were a given per cent regardless of an indefinite substraction from or addition to the supply of waiting, then that productivity would, in a modern civilized community, fix both interest and impatience at its own exact per cent. It means, in short, that impatience is not the fundamental cause of modern interest nor even a cause through which all other causes must operate, but that it is one of two coördinate causes and is also to some extent a joint consequence, with interest, of the other cause, the superiority of indirect production.

It may be worth while again to emphasize the importance of a correct use in this connection of the terms "supply" and "demand." Marginal productivity is not to be looked upon as having to do chiefly with demand nor is impatience to be regarded merely as putting a limitation on supply.[20] Neither is it correct to regard productivity merely as an explanation of why interest can be paid and impatience as a reason why it must be.[21] As we have seen, the marginal productivity of waiting *determines the supply of present goods, in the proper sense of "supply," quite as much as it*

[20] This appears to be the view of Carver, expressed in *The Distribution of Wealth,* New York (Macmillan), 1904, p. 224, and of Cassel (*The Nature and Necessity of Interest,* pp. 37, 45, 49).

[21] This seems to be the mode of treatment adopted in Ely, *Outlines of Economics,* New York (Macmillan), 1908, pp. 418, 419.

determines the demand; and impatience, so far as it operates as an independent cause, affects the demand of those who desire present goods as well as the supply offered by those willing to take future goods.

§ 5

A Concrete Illustration

To picture concretely the determination of a rate of interest, we may betake ourselves to Crusoe's island after the addition to the island's population of the group of Spaniards. The unimproved land is valueless. It is all "marginal" or "no-rent" land. One acre is as good as another and the supply is more than ample for all who live on the island.

But on part of the land, Crusoe has made valuable improvements. Among other things there are some trees of a certain sort, which yield nutritious fruit once, a year after being planted, and then die.[22] On an average there are 110 of the fruit to a tree. Young trees, suitable for planting, grow on a neighboring island, as does also the fruit. This other island is not a suitable place for a permanent habitation. But it can be availed of for its products, and can be reached from Crusoe's island, except at high tide, by fording. At first, Crusoe went to the neighboring island, at picking

[22] This assumption is made only for simplicity. It is apparent that the principles involved would be no different on the supposition of (say) a thirty-year life and a yield each year after the tenth. But so complicated an illustration of the principle would make the argument more difficult to follow.

time, for the fruit of these trees. But he soon found that it took him 10 trips to bring over, with considerable effort, 1,000 of the fruit, because of his limited carrying capacity; while 10 trips or, all things considered, an amount of labor equivalent to that required to bring 1,000 of the fruit, would enable him to bring over and plant 10 young trees. The next year these would yield, altogether, 1,100 of the fruit. Conditions of moisture, fertility, etc., are such that the trees have to get their start, as seedlings, on the neighboring island. Hence a new supply has to be secured each year. But, though it involves a year of waiting, the same amount of labor yields Crusoe 10 per cent more by this roundabout method than by the direct.

Enter now one of the Spaniards. Crusoe has just planted his year's crop of 10 trees. The Spaniard, who, in order to accumulate some capital of his own, is doing more work than is necessary to satisfy his present needs, would like to buy. Crusoe demands payment in terms of the kind of fruit the trees yield. One year hence the trees will yield 1,100 of the fruit without appreciable further labor. How much of the fruit are they now worth? How much will the Spaniard give? How little will Crusoe take? Is the question solely one of time-preference with each, or is something else involved in this *valuation of capital?*

We may begin with the Spaniard. His position is analogous to that of a lender. If he buys the trees, he will be giving up present fruit for future fruit. What is the most he will give? He will be guided in his decision by two considerations. *One* of these is his impatience or *time-preference.*

The other is the *cost-of-production* (in the place desired) of the trees. If he dislikes to sacrifice present goods for future unless he gets a return of (say) 5 per cent, he certainly will not give 1,100 of the fruit now for 1,100 a year from now. Even after he has gathered enough fruit, from the neighboring island, to buy the trees, he will refuse to buy them at any price above 1,048, and this refusal may be due to his time-preference. But will he give 1,048 if and because his impatience is only 5 per cent? By no means. For he has to deal with the fact that the same number of trips to the neighboring island and the same amount of labor, which will yield him 1,000 pieces of fruit, would get him 10 trees and plant them. If he has to pay Crusoe 1,048 pieces of fruit, he must work harder and make more trips, to get the means of buying the trees from Crusoe, than to get trees directly. He, therefore, however low his rate of time-preference, will refuse to pay more than 1,000 fruit for 10 trees, so long as he can get and plant 10 trees for himself with the same labor as is required to get the 1,000 fruit. His refusal to give more than 1,000 is not due to high time-preference for present goods but to his desire to get future goods in the cheapest way possible. It is not time-preference at all, but a choice between two different amounts of present labor, yielding the same future result. This is the sense in which the value of capital depends upon *cost-of-production.* The value of the trees cannot go above that amount of other goods which requires the same labor to get *directly,* as the trees do. The goods which could be got directly with the same labor and which must

be sacrificed for the present if the trees are directly got instead, may be regarded, in an entirely proper sense, as the *cost-of-production* of the trees. The essential fact is, then, that the prospective purchaser of capital has a choice among not less than three lines of action and not between two only. He is not, as the time-preference theorist would have us believe, restricted to a choice between the present fruit and the future fruit. Instead, he can have the present (*i. e.*, the early or this year's) fruit, or he can have next year's fruit from the purchased trees, or he can have next year's fruit from trees which his own labor procures. Not only the preference for present (or early) consumption will cause him to refuse to pay a too high price for Crusoe's trees; but also his other alternative of producing (in the economic sense of producing—in this illustration, place utilities) the trees by his own labor, will cause him to refuse to pay a too high price in the other possible products of such labor.

We reach a parallel conclusion if we suppose that the Spaniard, instead of buying trees of Crusoe the capitalist, employs Crusoe as a laborer to get the trees, paying him in present fruit. The Spaniard will not be willing to pay Crusoe more than 1,000 fruit for the labor of getting or planting 10 trees. Rather than pay wages appreciably higher, he would himself get and plant the trees desired. To be an employer of labor, advancing present consumable goods for durable capital, he must produce present goods in excess of his own present needs. *But he has the alternative of devoting his surplus time, instead, to the production of durable capital*

which will serve his future needs. This possible alternative will make him unwilling, however low his time-preference, to accumulate present goods for the payment of wages, unless his future return from so doing is equally large.

Likewise, if we suppose him to lend to Crusoe, the rate at which he will lend is influenced *directly* by his other alternative, and not merely by his time-preference or by his other alternative acting through the intermediation of time-preference. He will not lend Crusoe 1,000 fruit this year for much less than 1,100 next year, however low may be his time-preference, because the labor necessary to secure him the surplus 1,000 this year above present needs will, if turned to more roundabout production, yield him a return next year of 1,100. He would rather get 1,100 next year as a result of this year's labor in roundabout production, than to get *less* than 1,100 next year as a result of this year's labor in supplying Crusoe's present needs. There is no intention to deny that the surplus productivity of roundabout production also influences time-preference, by influencing the relative endowments of present and future.[28] Neither is there any intention to deny that the rate of time-preference, by influencing the extent to which roundabout production is carried, affects the marginal gain from such production. The rate of interest fixed by market competition will also be the rate of time-preference and the rate of surplus productivity of roundabout production. But to

[28] See Böhm-Bawerk, *Positive Theorie des Kapitales,* Dritte Auflage (Innsbruck, 1912), p. 468.

assert this is not to assert that time-preference is the sole proximate cause and that all other causes must act through it. As we have just seen, the rate of productivity influences *directly* the supplier of present goods; and the cost-of-production of capital, in the sense here used, has a *direct* influence on the demander of such capital.

Suppose, now, we turn to Crusoe's side of the market, the side of the person who purchases present goods with future. What determines the price at which Crusoe will dispose of his 10 trees, or rather, since this is the important question in the long run for capital valuation, at what price in present fruit will Crusoe be willing to engage in the business of getting, planting, and selling trees? Crusoe, we may suppose, is now permanently on the present goods side of the market. He is no longer accumulating capital and has, perhaps, lost or dissipated what he had. If he produces durable capital, it is only to dispose of it for present consumable goods. Let it be understood that we are not assuming Crusoe to be a middleman. On the contrary, he is here the "ultimate consumer." But he is also a producer. He wants present goods, present fruit. To get this fruit, he must either go to the neighboring island and bring it over *or* he must buy it of somebody else by offering future goods. Once he has produced these future goods, i. e., secured and planted the 10 trees, time-preference may alone decide at what rate he will exchange them for present fruit. But *before he turns his labor in that direction,* he will consider whether he can get more present fruit by producing durable capital to buy it with or by devoting the same

labor to getting the present fruit. Year in and year out Crusoe will not maintain the supply of more durable capital, i. e., will not produce it for sale, except at a price which is as satisfactory to him as the yield of direct production of present goods. The labor necessary to get the 10 trees is the same, on our hypothesis, as the labor necessary to get 1,000 pieces of the fruit. The 10 trees, planted near by, yield next year 1,100 pieces of fruit.

Crusoe's rate of time-preference of course fixes a minimum below which he will not sell the trees. If his rate of time preference is 15 per cent, he will not sell them for less than 956 fruit, because he would rather wait for the 1,100 future fruit. But, in the long run, his minimum price is fixed by *two* considerations and not by one only. The second consideration is his alternative of directly producing the fruit by going to the neighboring island after it. Year in and year out, he will not bring, plant, and sell the trees for less than 1,000 of the fruit. If he cannot secure approximately that price for the trees, he will get the fruit directly instead of trading for it. The possibility of his doing so will itself tend to keep the trees scarce enough to yield that price in terms of the fruit. In other words, he will not sell the trees for less than their cost-of-production measured by the other goods which the same work would produce.

Our conclusion is no different if we assume him to sell his services as a laborer, for wages, instead of selling the trees. He will not work for the Spaniard at the job of getting and planting trees, for a less wage in present fruit than the amount

of present fruit which the same labor would give him if applied directly to bringing the fruit from the other island.

But instead of selling trees for present fruit or working for wages in present fruit, Crusoe may borrow present fruit to pay it back next year. Here, also, if he is a *productive* borrower, he is not simply comparing present and future benefits. If he has no accumulations and if, also, it requires all his present labor to provide for his present needs, Crusoe must needs engage in direct production unless he can borrow. If he can borrow 1,000 present fruit, he is relieved from the necessity of getting fruit now for present needs and can get the trees instead. But more than 1,100 fruit next year for 1,000 fruit this year, he will not give, since the former represents *more present labor than the latter.* Only an unproductive borrower would make such a contract and he would soon be eliminated from the market. On the other hand, however low might be his time-preference, Crusoe would still be willing to borrow at any rate of interest less than 10 per cent. To do so would leave him as well off in the present and better off in the future. He would borrow at less than 10 per cent because to do so would give him a larger future income than not to do so. His comparison would be *between two futures, rather than between a present and a future.*

Let us now turn again to the distinction between land and capital. The distinction is not, strictly, one between land and all other capital. It is a distinction rather between reproducible and non-reproducible goods. The paintings of old masters

and business sites in New York City are in the same category. For all practical purposes, they cannot be reproduced. It is not intended to argue that there is no "made land" or that land owes none of its value to work upon it. But so far as its characteristics cannot be reproduced, the value of land is not limited by its cost-of-production. Crusoe could not sell his 10 trees for more than 1,000 pieces of fruit, for that was their equivalent of their cost-of-production. But if the island were crowded, and there were no practical possibility of adding to the land, no such definite limit would determine a minimum price of the land in terms of other goods. The value of this land could be arrived at only by discounting the prospective value of its future yield. The value of reproducible capital is influenced by *two* considerations; that of capital *not* reproducible, by *one*.

§ 6

Interest in a Money Economy

It should not be difficult to translate our results into terms of a money and money price economy. In such an economy, fruit or other consumption goods would not be directly borrowed. The borrower would seek, instead, the amount of money necessary to purchase such goods. Trees would not be directly traded for fruit nor would the labor of planting trees be paid for in fruit. Instead, the seller of trees or fruit or labor would receive money and the buyer would pay money. But the ultimate result would be the same since the seller of one good is the buyer of another. In order to

make plausible the assumption of a money economy on Crusoe's island, let us suppose its population to have materially increased so that others than Crusoe and the Spaniard are engaged in productive effort. The Spaniard now will not pay for Crusoe's 10 trees more *money* than he can get for his 1000 pieces of fruit. He might better, himself, become a producer of trees and let Crusoe or others go after fruit. Likewise, Crusoe will not intentionally produce the 10 trees for sale at a lower price in *money* than could be realized by the sale of 1000 pieces of the fruit. So, also, if the Spaniard contemplates borrowing, not the 1000 pieces of fruit necessary to support life while fetching and planting the trees, but the amount of *money* necessary to buy the fruit, he will not consent to repay more, as principal and interest, than the expected money value, next year, of the 1100 pieces of fruit which his present efforts will then yield him. Nor will Crusoe, as a lender, consent to take much less, since he might rather himself expend his money for the fruit which he would then not have to produce to satisfy his present desires. By so doing Crusoe would be relieved of the necessity of gathering fruit, would be able to plant trees instead, and could secure, next year, the reward of his roundabout production. With the use of money or without it, the rate of productivity of waiting is an important determinant of interest. If the relative difficulty of producing fruit directly and of producing trees remains unchanged during the year, that is, if the per cent marginal return to waiting in the industry in question is constant, then the relative money prices of fruit and trees

will remain unchanged. Unless, therefore, the money prices of both change, the percent gain from roundabout production, measured in money, and the rate of interest realized in money, will be the same, respectively, as the per cent gain and the rate of interest realized in fruit. In a later section[24] reference will be made to some of the effects of the fluctuating value of money. But these effects, though they may lead us to qualify, will not lead us to cast aside the results of the foregoing analysis. The connection of the surplus productivity of roundabout processes as a cause with the rate of interest as an effect is too fundamental to be successfully controverted.

§ 7

Changing Bank Reserves in Relation to Interest

A large amount of money carries with it in a modern country, a large amount of bank credit. A part of the money in a modern community takes the form of bank reserves, and the credit which banks can lend with safety is a more or less definite multiple of these reserves. Also, as a matter of business convenience, individuals and corporations preserve a more or less definite ratio between their cash assets and their checking or commercial bank credit accounts.[25] If, therefore, the quantity of money should double, we might very reasonably expect the volume of bank credit to double likewise, and prices to double. The new

[24] §8.

[25] See Fisher, *The Purchasing Power of Money*, New York (Macmillan), 1913, pp. 50-52.

condition of equilibrium, when reached, would be one in which the amount of money in circulation, the volume of bank credit, and the amount of money in bank reserves, were all larger in the same proportion (double) and in which, therefore, these quantities had the same ratios each to each as before the increase.[26] With a large quantity of money, interest would be the same as if there were less money[27] and with a *change* in the quantity of money interest would *eventually* be the same as if the quantity of money had not changed. But with a *change* in the quantity of money there are likely to be certain disturbing transitional effects on the loan rate of interest, to which at least brief consideration ought to be devoted.

When the amount of money increases rapidly and largely, the new money goes at first, for the most part, into the banks. If it comes from the mines, the mine owners can do little else than deposit it. Even if they put the money into various investments, the receivers of the money can do little else than deposit it in commercial banks. They may choose to use a fifth or a tenth of it as money in current transactions, but they will probably prefer for their larger transactions to use checks. Hence bank reserves are pretty likely to be increased, at the start, more than money in circulation outside the banks is

[26] Assuming, of course, that other conditions did not meanwhile so change as to make a new equilibrium the normal one.

[27] The notion that loan interest would be reduced because there would be more money to lend, comes from overlooking the fact that with higher prices correspondingly more must be borrowed. See Fisher, *The Rate of Interest,* New York (Macmillan), 1907, p. 8.

increased. The case is substantially similar when gold flows into any one country from abroad. During two years of the present world war, while the United States was neutral, a tremendous excess of exports from, over imports to, the United States brought a very large inflow of gold. But the exporters did not want the balances due them in the form of gold or money. They desired some money but mostly checking accounts. They sold to the banks their drafts on the foreign purchasers of American goods, and accepted credit accounts with the banks and such cash for small transactions as they needed. The banks received the imported gold. The ratio of money in banks to money in circulation was large; the ratio of bank reserves to bank deposits (checking accounts) was larger than would otherwise probably have been the case. There were said to be surplus bank reserves.

Of course this condition is not permanent. The larger reserves must eventually mean more bank credit, i. e. a larger volume of checking accounts. The larger volume of bank credit must mean larger cash withdrawals. As we have just seen, the eventual new condition of equilibrium is one of increased money in circulation, proportionately increased bank reserves, proportionately increased bank credit, and higher prices. But how does all this come about? Must it not be through a bank discount (interest) rate sufficiently favorable to encourage borrowing? The banks have excess reserves and, therefore, large lending power. It is their particular business to make loans, and it is more profitable for them to loan at fairly low

rates than for them to hold excessive idle reserves. Gradually the favorable rate on loans encourages borrowing, bank credit expands, prices rise and, when bank reserves are no longer in excess, bank discount (interest) rates rise also. So, too, bank discount (interest) fluctuates with the change from business depression to business activity as bank reserves are alternately excessive and barely adequate. The ultimate long run influences on the rate of interest are those we have discussed in the previous chapter and the preceding sections of this chapter.[28] But the *fluctuations* in the loan rate are closely connected with the fluctuations in general business activity, seasonal changes, changes in the quantity of money and, going along with these or because of these, *changes in the per cent of bank reserves to bank deposits (checking accounts)*.

An increased quantity of money in bank reserves may not for several months or, perhaps, even years, bring about the eventual corresponding increase in bank credit and the incident rise of prices. The borrowing business man has, ordinarily, a certain notion of how much business he wishes to do and how large a stock of goods or how much

[28] To which should be added, the influence of the sporadic waiting made available by the institution of commercial banking, which places at the disposal of borrowers funds of depositors which would otherwise be idle for various indeterminate periods and tends thus somewhat to reduce the marginal productivity of waiting. More capital of other sorts can be produced because credit has been substituted for the more expensive specie. But marginal productivity remains a determining force in fixing interest. See the author's *Principles of Commerce*, New York (Macmillan), 1916, Part I, Chapter II, §§ 3, 4 and 5.

labor he wants to buy. To carry out his plans he needs a certain amount of funds larger or smaller according to the prices of what he has to buy. Until bank credit has expanded proportionately to the increase of money, prices will not rise in the degree to be eventually expected. But until prices do so rise, the business-man borrower does not need to seek much more than his ordinary credit to carry on his ordinary business. The level of prices depends largely upon the volume of bank credit but the amount of bank credit depends in considerable measure upon the level of prices. Nevertheless we are not absolutely caught in an endless circle. Favorable discount rates will encourage business men to borrow and endeavor to expand their business. But when the industrial world is fully occupied, the endeavor of its different units to expand can hardly result in a general expansion. Different business men bid against each other for labor, for raw materials, for structural goods, and prices rise. The rise of prices necessitates more borrowing, even if, in individual cases, there is no expansion. The favorable discount rates still encourage to attempted expansion and to the further borrowing which such expansion implies. At length per cent reserves are reduced, credit is expanded to its normal ratio to reserves and to money in circulation, prices are high, and men must borrow largely to do an ordinary business at these high prices. Interest rises, and, if bank reserves become inadequate or nearly so, may have to rise to a point as much above its usual level as it previously was below. We may, however, think of these various changes in bank discount rates as fluctuations above

and below an average or normal rate. Furthermore, the bank discount rate is purely a *loan* rate. It is not necessarily the rate at which present goods and future exchange for each other when capital instruments are sold. It is not necessarily, in other words, the same as the rate of return realized by the owners of capital,[29] although it tends, in the long run, to approximate that rate. When loan interest is, for any such special reason as increased bank reserves, temporarily abnormally low, this does not mean that the interest earned by capital is low but only that borrowers are profiting at the expense of lenders, realizing large or moderate returns on the capital of others and paying low rates for the privilege.

§ 8

Rising and Falling Prices in Relation to Interest

To illustrate the relation of rising and falling prices to the interest problem, let us take the case of a man who, for $6,000, buys a house. If, as a consequence of increasing gold production or expansion of credit or both, prices rise, in five years, by 50 per cent, and if this rise is a general one applying to houses as well as to other things, then his house, at the end of five years, will be worth $9,000.[30] The owner will have had the annual use of the house, or its annual rent at a progressively higher rate, and can now sell it for an increase of 50 per cent over the purchase price. Nevertheless,

[29] In excess of their wages of management.

[30] Making no allowance for depreciation.

on the supposition that other prices have gone up in like ratio he is no better off than before. He has 50 per cent more money than he otherwise would but also the things he wants to buy cost 50 per cent more. Similarly, if prices fell, so that his house would sell for only 2/3 of the purchase price, or $4,000, this fall would carry with it no loss, since the $4,000 would buy as much at the lower prices as the $6,000 would originally buy.

But with prices rising the annual *money* rents received for the use of the house, if rented, would come to be a larger *per cent* of its *original cost;* while with prices falling they would become a smaller per cent. The actual gain on investment may be the same in either case, but the gain measured in money bears in one case a larger and in the other case a smaller ratio to the original money value of the property. Hence, in a *nominal* sense, the interest received by the directing owner of capital is higher in periods of rising prices and lower in periods of falling prices. It should be emphasized that the interest here in question is the "implicit"[81] interest received by investors who directly purchase income-yielding capital; "explicit" or loan interest is not meant.

A consideration of the rate of interest on loans in a period of rising or one of falling prices, raises the question of the relative gain or loss from price changes of the borrower and the lender. Let us turn again to the hypothesis of a 50 per cent rise of prices and its effect on the purchaser of a $6,000 house; but let us now assume that $4,000 was bor-

[81] A term used by Fisher, *The Rate of Interest,* pp. 10 and 11.

rowed at (say) 6 per cent interest, the principal to be repaid in five years. In the meanwhile the lender receives $240 a year (6 per cent of $4,000), which the borrower can presumably pay, while still making something for himself, out of the gradually rising rent of the house. And at the end of the five years, when the property sells for $9,000, the titular owner has to pay only $4,000 to the person who made the loan, $4,000 which will buy much less than it would have bought when lent five years before. The titular owner himself keeps the other $5,000, a sum which makes good his personal investment of $2,000, together with the loss from the depreciation of money, and, in addition, gives him a substantial profit at the expense of the lender. Had the lender been familiar with the fact that money is not constant in value, had he foreseen the rise of prices, and, having the alternative of himself investing his money in a house or otherwise, had he refused to lend except for an interest return enough above the 6 per cent to compensate him for the depreciated value of the money he would later receive, the borrower would not have been able thus to gain at his expense. Indeed, as Professor Fisher has shown,[32] there is some tendency for rising prices, if long continued, to increase the rate of interest paid on loans, because, although the depreciation of money may not be consciously recognized as such, yet the profits of extending investment on borrowed money during such a period of rising prices are so tempting as appreciably to increase the demand for loans and,

[32] *The Rate of Interest,* Chapter XIV.

probably, to decrease the supply. More persons wish to borrow in order to invest. Fewer persons wish to lend for the investment of others. There is likely to be, therefore, when the rise of prices is at all prolonged, a marked tendency for loan interest to go up.

The statement that rising prices, if long enough continued, cause the rate of loan interest measured in money to rise, should not be regarded as inconsistent with the view previously presented[33] that a large and rapid increase in the amount of money is likely, at first, to reduce the bank rates of discount by creating large reserves. The *higher* rate of interest on loans should be regarded as a later effect of increasing money. The probable sequence would be: increase of money; increase of bank reserves; low discount rates on loans from commercial banks;[34] expansion of bank credit; rising prices; rising interest and discount rates.

On the other hand a fall of prices such that in five years the house and lot of our illustration would sell for only $4,000 instead of the $6,000 originally paid for it would mean, not only that the lender would get his $240 a year regardless of the fact that the rent of the house was progressively declining, but also that at the end of the five years the house and lot would sell for barely enough to pay him his principal. His $4,000, however, would buy very considerably more than the $4,000 he lent, while the borrower's $2,000 margin would be reduced to nothing. Falling prices, therefore,

[33] § 7 of this Chapter (V).

[34] Influencing, of course, the general rate of interest on loans.

call for and, in the long run, probably bring, lower rates of money interest[35] to compensate for the greater difficulty of repaying the principal. But changes in the value of money are inadequately realized and seldom accurately foreseen, and it therefore follows that the relations between borrowers and lenders are seriously disturbed by such changes. A money and credit system so adjusted to trade as to keep the average price level always constant would for this as well as for other reasons have advantages over the present fluctuating currency.[36]

§ 9

Some Further Complications in the Actual Industrial World

A number of additional refinements must be added to the theory of interest as thus far presented, in order to make this theory fit the complications of actual life. In the first place, we can not properly assume for the real economic world, as we have been assuming, for the sake of simplicity, in much of the preceding discussion, that the mar-

[35] It is not improbable that a decrease in the amount of money or a decrease of money in proportion to business, would first show itself in comparative insufficiency of bank reserves and temporarily higher discount rates, this condition being followed by a decrease or relative decrease of bank credit and by falling prices, and the falling prices leading to a decrease of demand for loans and, hence, to a lower rate of interest on money.

[36] See *The Purchasing Power of Money*, by Irving Fisher, assisted by Harry G. Brown, New York (Macmillan), 1913, Chapter XIII, for a discussion of various methods of making the price level more stable.

ginal gain from roundabout production will be alike 10 per cent or 5 per cent or any per cent for all actual and potential producers, without regard to whether they have access to the loan market. Capabilities and aptitudes differ. Marginal roundabout production might yield, for one man, making use only of his own saving or waiting, 10 per cent over the yield of direct production; while for another man, making use of all his own waiting and no more, the yield might be only 4 per cent. The yield to the second man might be smaller because he had saved more and had to carry roundabout production to a lower margin. Or it might be smaller because he was less efficient in roundabout production or because he was more efficient in direct production. In any such case both would gain by the possibility of a loan. If both have saved equally while the first producer can gain a larger per cent from roundabout production, the first can profitably borrow and the second can profitably lend. So, likewise, if the second has saved so much that his waiting, directed by himself, can produce, at the margin, but little return, it will be advantageous to him to lend to someone who can make his waiting produce more. In that case he will not carry his own use of capital to such a point as to bring the marginal yield below the interest he can realize by lending. The first producer, whether the large gain he can realize from roundabout production is due to his having saved little or to his being relatively proficient in directing a roundabout process, will find it worth while to borrow at the prevailing rate and to carry roundabout production to a point such that the yield

from its further extension under his direction would not be in excess of the rate at which he could borrow. Thus, the marginal productivity of capital or of waiting, for each producer who directs the use of capital, tends to approximate the rate of interest at which he can lend or the rate at which he can borrow. If everyone could give equally good security and could, therefore, borrow at the same rate, the marginal productivity of waiting would tend to be the same for all producers and all lines of production.

In the second place, we must somewhat qualify our conclusions regarding the determination of the value of capital, though not in such a way as to affect the main principles contended for. We have said that interest is some per cent, e. g. 6 per cent, because capital instruments the values of which are measured by the alternative goods that could be produced by the same labor, working with an equivalent equipment of land and tools, yield 6 per cent. Thus a railroad, some barns, some mills and some machinery, taken all together, would be said to be worth in the long run a certain amount in terms of consumable goods or of money exchangeable for such goods, because, were they to be worth any less, the labor, etc., turned to their construction would find it more profitable to turn, in part, to the production of consumable goods. In the real economic world, with the diverse inherited abilities of its members and the different kinds and degrees of acquired skill, many producers practically have not the alternative of changing employments. But so many can change their employments and the choices

of those persons just about to enter the ranks of industry are so important, that the value of various kinds of capital is related, through their alternatives, to the value of consumable goods. In like manner the value of consumable goods is related to the value of capital. Since producers of one kind of goods usually have different aptitudes than producers of another kind, we cannot say that the value of any capital must exactly equal the value of the present goods which the same labor or an identical quantity of labor would produce. But that there is a close relation between the two, due to the existence, for many producers, of alternatives, cannot be gainsaid. Stating the matter roughly and assuming the above qualification to be made, we may say that the (marginal[37]) product of labor devoted to the construction of capital equipment will exchange for the (marginal) product of an equal amount of labor devoted to the production of consumable goods.[38] Of course,

[37] For explanation and more complete discussion of the "marginal" product of labor, see Chapter VII.

[38] If A buys from B a piece of capital which it requires (say) a year to make, the price paid for the capital will of course be different according as the payment is made from day to day to support B while he is making it (wages) or at the end of the year when it is complete. In the former case A would be willing to pay the amount of current goods which labor equivalent to that of producing the capital could alternatively produce. In the latter case, if A had *contracted at the beginning of the year* to buy the capital of B at the end of the year, the amount he would have been willing to offer would be, not the amount of goods he could have currently produced by a direct process but the amount he could have produced by the most effective roundabout process available which would nevertheless yield its entire product by the end of the year. But if A does

also, if capital of any special kind is constructed in such excess as to make its surplus marginal productivity less than that of capital in general, its salable value will come to be less, while it is thus in excess, than its cost of production. But the tendency will be for the construction of such capital to cease until its value again reaches its cost.

It is understood that the labor devoted to producing consumable goods uses existing equipment and that, if it did not have any such equipment its marginal product might be very much less. Likewise the labor devoted to making equipment uses preexisting equipment in so doing. It is, indeed, clear that, in general, industry is immensely more productive with capital than it could possibly be if there were no capital. The marginal products of the other factors are greater the larger are the accumulations of capital of which these other factors can make advantageous use, while the marginal productivity of waiting is diminished

not decide to buy the capital until the end of the year he makes his decision when there is no longer open to him the alternative of himself producing it *and enjoying its use equally early*. Nevertheless, the opportunity to make choices among all the options here suggested continually recurs and is of importance in the determination of capital value. There is also the option, for A, of combining his effort with that of others so as to produce the capital in less than a year. In that case it is only partly his but also he has only paid part of its cost. The possible options significant for the interest problem include, of course, not only the choice between direct and roundabout production but also, as suggested above in this note, choices between longer and shorter roundabout processes. These choices, too, are choices between larger and smaller later incomes as much as they are choices between earlier and later incomes.

and the rate of interest lowered. That capital should be accumulated is important, therefore, even to those persons who cannot themselves save any. Likewise, in a community which has large accumulations of capital and in which, consequently, the productivity and price of other factors is high, the individual business man cannot afford not to use capital. Were an employer of labor to use no capital at all in his business, the product turned out by his employees would seldom or never pay their wages. Nor would this product probably pay the rent charged by the owner of the site used. The difference between using and not using capital might therefore be the difference between swift failure and measurable success. But the difference between using a little more or a little less capital would be of comparative unimportance and might be a difference of only 10 or 5 per cent of the additional increment used.[89] In modern production there is practically always more than one factor; usually there are three. Whatever may have been true of primitive man, modern man always uses tools. He uses tools to make tools and buildings to make the structural material for more buildings. The point here to be emphasized is that, in the case of a man who is marginal between the two employments, what his labor can add to the equipment of society which existing equipment cooperating with other labor would produce without him, will exchange for what his labor could add to the consumable goods or services available to

[89] Cf. Jevons, The Theory of Political Economy, fourth edition, London (Macmillan), 1911, pp. 256-259.

society, which existing equipment cooperating with other labor would produce without him. Since goods are produced by land, labor and capital acting in conjunction, and since this is as true in the production of more capital as in the production of consumable goods, we must broaden our statement if it is to make proper reference to land and capital as factors in the production of additional capital. Let us say, then, that the value of any capital will be equal to the amount of consumable goods which the labor *and* the land *and* the capital used in producing the additional capital in question could produce,[40] assuming each of these factors to be used in its most profitable alternative way. And the fact that capital of a certain value determined as has been herein set forth will yield a given income, is a reason why interest on loans is a given per cent.

In the third place, attention should be called to the fact that, in a modern community, to a considerable percentage of business men, investment and, therefore, capitalistic or roundabout production does not involve primarily manufacturing but has to do rather with merchandising. Hence roundabout production may, for them, involve other investment outlays in addition to those for the provision of such *material* equipment as stores, delivery trucks, etc. These other outlays of the merchant—and of the manufacturer in so far as he must devote a part of his attention to the mere selling of his goods at a profit, as

[40] The labor, land and capital here considered are assumed to be, each, not specialized but marginal between two uses.

distinguished from the manufacture of them—include, for example, outlays for the building up of goodwill, among which advertising is perhaps the most important. Competitive advertising may, indeed, be a waste of a community's labor time. The argument currently advanced that it enables a merchant or manufacturer to sell more cheaply because of the increased volume of his business may be applicable in the case of any *one* merchant or manufacturer who advertises, as contrasted with the prices he would have to charge if *he* did not advertise. But when the advertising is done by all sellers in any line the result may well be that, on the average, their business is no larger while the expense of doing it is greater, so that the charges for the goods sold must be higher. Even if each of the sellers of these goods, by virtue of advertising, sells more than before, the increased purchases by the public in this line, thus stimulated by advertising, inevitably mean less purchased in other lines. It is difficult to see, therefore, how competitive advertising, except so far as it may be a necessary means of developing intelligent discrimination among purchasers and so somewhat stimulating rivalry among producers, can be anything but wasted effort. The time may come when, for its own protection against increasing costs of distributing products, the public will establish and enforce a maximum limit to advertising, will fix, as it were, a plane of competition in advertising, just as it endeavors to fix a plane of competition as regards employment of child labor, price discrimination, railroad rebates, etc. However this may be, advertising is an investment

which, for the individual concern which engages in it, is often well worth while. For such a concern it is productive. And for such a concern the building up of goodwill in this way, from which profitable results are expected in the future rather than at once, is clearly a case of roundabout production. It might well be financially advantageous to borrow the funds for the purpose and pay interest on them. The labor and other factors employed in advertising are employed analogously to the labor and other factors used in constructing material equipment. The purpose is, not to change the form of wood, iron, etc., as in the latter type of operation, but to change the mental processes of potential purchasers of certain goods. The labor devoted to doing this does not directly and immediately produce its own food and clothing or, even, the sales which bring money income (exchangeable for food and clothing) to the employing firm. To keep this labor thus employed in a roundabout process which yields a greater but a less early return than direct activity would yield, current means of livelihood must be provided to those so employed. The persons who furnish newspaper plant and other equipment for the purpose must also receive payment in the form of purchasing power exchangeable for a certain amount of subsistence.[41]

[41] In this connection it may be well to point out that the expenditures of a government for war purposes are, in a sense, expenditures for roundabout production. The army of a dynastic or imperialistic state is maintained as a means to the realization of dynastic or imperialistic aims. A democratic nation may wage war for the perpetuation of democratic institutions. In either case, the food,

As always, of course, when wages and other payments are made in money, the persons receiving these payments may, if they choose, spend the sums received for *capital.* But if they do they are receiving *future* goods for future rather than present goods for future and the rate at which present goods exchange for future has in the circumstances, no particular significance. In passing, mention may be made of the fact that subsistence, etc., used to make possible leisure from direct production and the devoting of time to securing general education or technical training may be said, often, with truth, to be used for roundabout production.

§ 10

Interest Earned and Unearned

Roundabout production may and often does involve exploitation. Thus, a manufacturing concern the dividends of which will be enhanced if it can, in future, be assured of freedom from com-

clothing and munitions furnished the soldiers make it possible for them to devote themselves to ends more or less remote but, in the view of their government, ultimately desirable ends, as distinct from devoting themselves to the immediate production of consumable goods. But, of course, the providing of millions of soldiers with goods which are immediately consumed and destroyed makes it impossible to provide so many producers with the means requisite to carry on roundabout *industrial* processes, tends to raise the surplus marginal product of roundabout production and tends towards higher interest rates. Means of defense are necessary and clearly justifiable for a nation surrounded by armed potential foes; yet it is also clear that from the point of view of *world* economy, competitive military and naval establishments are not instruments of production but merely very heavy burdens.

petition with foreign rivals, will be, from the point of view of its stockholders, engaged in roundabout production when it pays for advertising space in newspapers to create a general sentiment in favor of the tariff as a wage-raising device, contributes openly or by indirection to a political campaign fund, and hires lobbyists to care for the particular schedules in which it is interested. All of the labor and other factors so employed must be paid what the market conditions require and therefore must be paid not less than they could secure in direct production. The activities of these factors are expected to yield larger eventual returns to the employing company than if they were used in selling or in producing immediately salable goods. Did the company borrow to carry out such a policy, the borrowing clearly would not be the result of a desire upon the part of the company's stockholders to secure present consumable goods for their own consumption but because the control of present consumable goods (or the funds to purchase them) enables the company to employ in a relatively long-time process labor and other factors which might else have been employed in more direct production,[42] and to reap a gain in so doing. The company's demand for funds has resulted, not from preference for present goods over future but from preference for a larger future income over a smaller future income. Clearly, the gain from roundabout production is not necessarily a social

[42] Or in roundabout production for some other employing company, thus displacing another set of employees and equipment for more direct production.

gain. Exploitation of the masses by a plutocracy may be, in part, exploitation by a roundabout process. Income so secured is not earned by service rendered, although, of course, the owners of the funds used receive their interest return for rendering a service to those who are rendering the public a disservice. Income derived from the use in serving the public, of funds accumulated by the saving of gains themselves legitimate, is earned. Income secured by injuring or assisting in injuring the public should be terminated so far as is reasonably possible, by effectively prohibiting exploitive activities.

It should now be clear that, if all possible anti-social uses of capital were effectively forbidden, interest on capital would be earned as truly as, under like circumstances, the wages of labor would be earned. The person who had accumulated capital, who had, by his saving, brought into existence capital which, except for him, would never have come into existence, and who thereby had made possible an addition to the current product of industry, would have earned, in the sense of giving a *quid pro quo*, interest on this capital. Such interest, contrary to the view of Marxian socialists who include all interest in what they call "surplus value" is in no sense exploitation. There is, indeed, far too much exploitation in the modern industrial world. The nature of some of this exploitation has already been explained in this and the previous chapter and attention will, as we proceed, be devoted to exploitation of other kinds. But that interest, purely as such, is necessarily exploitation, is a claim

which neither the socialists nor anyone else can substantiate.[43]

§ 11

Summary

The interest rate in a modern community is a result of the influence of many alternatives of many individuals. A person may lend or borrow, he may buy capital with consumable goods or sell capital for consumable goods, he may engage in relatively roundabout or relatively direct production. The rate at which present goods exchange for future goods outside of loan contracts, is a part of the same problem. The value of

[43] Nor do owners of capital *as such,* have any advantage over the rest of the community in the ability to profit beyond their own contributions by the accumulated technological knowledge of the race. (That they do have this advantage seems to be asserted by Professor Thorstein Veblen in *The Instinct of Workmanship,* New York,—Macmillan—, 1914, p. 281.) In this regard, not they alone but all of us of the present generation, reap where we have never sown. Labor or land, as well as capital, may thus be rendered more productive than in the past. But in truth, *if the capital from which any person derives interest was itself fairly earned and is used in socially desirable ways,* its use adds to the productiveness of industry, over and above what all the land, labor and other capital of the community could, *in the prevailing state of technological information,* have produced without it, all that its owner receives as interest. His gain leaves to the rest of the community all that the intellectual equipment of the race could have produced without his accumulation. He reaps only the *additional* value output which would not have resulted except for him. And in proportion as large amounts of capital have been accumulated and its marginal productivity and interest so reduced, the tendency is for others than the owners of capital to profit greatly from industrial progress and from capital construction.

capital is influenced by the rate of impatience or time preference at which its expected future benefits are discounted but also by the fact that the labor, etc., devoted to the production of this capital might have been devoted, instead, to the production of other and more immediately consumable goods. In a broad sense the owner and user of capital, no less than its owner and lender, enjoys interest. We may, with some gain in clearness, regard the surplus of roundabout over direct production, at the point beyond which roundabout production is not extended, as the marginal product of abstinence or waiting, since it is abstinence or waiting that makes this gain possible and since capital is not an ultimate factor. The gain is less the farther abstinence or waiting is carried. But the rate of interest tends to equal the per cent of this gain. A rate of interest higher than the marginal product of waiting must cause the demand for waiting by those who would purchase it (offering future goods for present) to be less than the supply offered by those who would sell it. Likewise a rate of interest lower than the marginal product of waiting must cause the demand for waiting to be in excess of the supply. Only at a rate of interest equalling the marginal product of waiting can we expect the demand for and the supply of waiting to be equalized. Such a rate will, of course, be higher than the marginal yield which some men could secure from their waiting did they insist on making use of all of it in business directed by themselves. These men will usually prefer to be lenders. The equalizing rate will be

lower than the marginal product which other men could secure if they used their own waiting alone. These other men will usually be borrowers. Thus, the waiting done by men in excess of their own profitable use may be made advantageous both to themselves and to others. The rate of interest clears the market in exchange of present for future goods, equalizes or tends to equalize the time-preference or impatience rates of those who have access to the market, equalizes or tends to equalize the marginal productivity of waiting for different persons who have occasion to make use of waiting and who are able, through the market, to buy and sell it at approximately equal rates, and, also, equalizes or tends to equalize the marginal productivity of waiting for different lines of production. Roundabout production need not involve material equipment but is exemplified in advertising, lobbying, and other non-technological activities. Roundabout production may be "production" only in the sense of exploiting the public for the benefit of a few, in which case the interest received can hardly be regarded as earned by equivalent service given. Fluctuating bank reserves and rising and falling prices are likely to cause fluctuations in *loan* interest but do not necessarily affect the real incomes received by owners of capital who themselves direct its use. It is the real incomes from capital which, in the long run, tend to fix the rate of interest on loans.

CHAPTER V

WAGES AND POPULATION

§ 1

The Proximate Determination of Wages

The larger part of the incomes of the majority of persons, though not of those whose incomes are the greatest, are incomes from labor. Some incomes from labor, usually those received for the work requiring least of physical exertion, we call salaries. Other incomes, really the direct result of labor, we call proprietors' or enterprisers' profits. The part of a proprietor's income which is derived from capital investment is then assumed to be excluded from consideration. It is assumed that a portion of his total income is due to or attributable to his possession of capital and another portion to his mental and physical efforts. He may, also, receive accidental gains and suffer accidental losses, accidental in the sense that some proprietors gain and others lose when, so far as intelligent observers can see, managerial ability and application is not correspondingly unequal. For our purposes, all of the returns properly attributable to labor or effort may be lumped together as wages.

What we seek is a knowledge of the forces that fix wages in any special line of work and with that, as a by-product of our narrower study, a knowledge of what fixes wages in general. We shall find the law of wages to be analogous to the

law of interest, and the approach to an understanding of the law to be through similar avenues.

Wages, like interest, are fixed by demand and supply, and whatever more ultimate forces act upon them act through demand and supply. If, at wages of $2 a day in any line, more men are wanted in that line than are to be had, the resultant bidding tends to raise the wages until the demand is no longer in excess of the supply. On the other hand, if, at wages of $3 a day, the supply of labor of the sort in question is in excess of the demand, then the seeking of employment by would-be wage earners in that sort of labor must tend to lower wages to a point where supply no longer exceeds demand.[1]

[1] Some interest attaches to the question of whence comes the ultimate demand for labor. It is unquestionably true that, considering economic society as made up of groups producing for each other under modern division of labor, the demand for any special kind of labor traces back of the employer to the purchasers of the goods made, or in other words, to wage earners, etc., in other lines who desire this special kind of goods and who, indirectly, are trading for them goods which their labor or their line of industry produces. In this view the labor of some constitutes a demand for the labor of others, just as the supply of some goods is said to constitute a demand for other goods. But while no one can demand goods without, in effect, offering other goods in exchange for them, it is certainly possible to demand labor, in the sense of being a buyer of labor, while yet not offering labor in return. Any capitalist or landowner can turn the trick. His purchases represent a demand for labor but not a supply, a demand for one kind of labor which does not emanate from a supply of another kind.

There are, indeed, advantages from the point of view of a discussion of general wages, in thinking of all labor as offering its services to owners of property and owners of property as buying these services. With a division of society into the two classes of property owners and laborers, with free contract, but with no markets and

Let us devote brief attention to some line of industry and attempt, for that industry, to see what wage-determining factors lie immediately back of demand and supply. For purposes of illustration, we shall examine the wage-determining influences in a hypothetical, small community, the only industry of which is the raising of wheat. In this community are five farms of various degrees of fertility and having various equipment. We shall suppose the size of farms and the equipment of each farm to be, for our present problem, a fixed fact. There is in the community a definite number of laborers of equal efficiency. On either one of two of the farms, which we shall call, respectively, A and B, 3 men can produce 1500

no exchanges of goods, the property owners would find it advantageous to employ the laborers, agreeing to give the latter a part of the total product of industry and keeping a part for themselves. It is the relation of the propertied classes to wage earners which we have or should have in mind when we speak of wages in general as rising or falling in relation to other distributive shares and when we speak of changes in the general demand for labor. It was the relation of wage earners to capitalists which Mill had in mind when he stated that demand for labor comes not from the purchasers of goods but from the capital employed in hiring labor, and that the purchasers of goods simply determine in what line or lines labor shall be employed. (See Mill, *Political Economy*, Book I, Chapter V, § 9). Were there no market for goods, the capitalist employer, instead of hiring men to produce goods for sale and using the proceeds to buy other goods for himself, while his employees likewise used the wages which constituted their share of the product to buy other goods, would simply hire the labor to produce directly such goods as he and they wanted and pay them a share of the product. Presumably wages would not be so high, under this arrangement, as under the modern system of specialization of capitals and complex division of labor, since specialization makes for greater efficiency of production.

bushels,[2] 4 men can produce 1900 bushels, 5 men can produce 2200 bushels, 6 men can produce 2450 bushels, 7 men can produce 2650 bushels. On each of the other three farms, 3 men can produce 1200 bushels, 4 men can produce 1500 bushels, 5 men can produce 1750 bushels, 6 men can produce 1950 bushels, 7 men can produce 2100 bushels.

The reader will notice that the product per man is less as the number of men working on a given area is greater. We have put into the numerical terms of our illustration the fact, with which every business man and every farmer is familiar, that after a certain degree of utilization is reached a larger force working with a given equipment and in a given space or on a given area, though its total production may be greater and though, with wages sufficiently low, its employment may be worth while, will not secure a product as large per man employed as the smaller force. It is to be emphasized that the above-stated law of production applies as certainly to work in a factory or an office building as on a farm. It is true that a given land area can be very intensively used in manufacturing, in mercantile business or in professional work, by building story upon story. Nevertheless, diminishing returns are realized in proportion to the labor involved, because of the progressively stronger foundations necessary with increasing height, because of the increased elevator expenses, and perhaps other disadvantages.

[2] It need not be supposed that these two farms are of equal fertility. One may have greater fertility and the other more or better equipment.

Before attempting to go farther in explaining how wages would be determined in our assumed community, it will be worth while to call attention to the way in which an individual employer[3] adjusts his business to wages. Each employer determines, in the light of current wages and in the light of the probable advantage to him of the services to be rendered, how many men he will hire. In order to give greater exactness to the statement we may say that each employer hires men up to the point where the last man hired is expected to be worth no more, in this employer's business, than the wages which the man must be paid.[4] The individual employer, except in the

[3] Who may be a capitalist, a landowner, an enterpriser using chiefly borrowed funds, or himself a hired servant of owners of property.

[4] If wages must be paid before the product is sold then, obviously, an employee the product of whose labor is not worth, when sold, his wages plus the interest his employer has to pay (or forego from some alternative investment to pay him), is not worth hiring. Hence, a potential employee's service may be of much less value to an employer whose credit is not good and who must pay high interest on borrowed funds, than to an employer in a more favorable financial condition. To the general theory of employer's demand for labor, as presented in the text, some one may object that an exceptionally capable employer could gain more from the labor, as also from the land and the capital, used by him than could an employer less capable, and that, therefore, the essential problem relates *merely* to the proportioning of factors and not to the marginal productivity of any one or of each of the factors. But if such an exceptionally efficient employer could add more to the annual product of his business, by hiring more men, than the wages to be paid, *and did not do it* (and the same principle would apply to his borrowing of capital or renting land), he would not be making the most effective use of his directing ability; he would not be choosing the best proportion of other factors to the amount and quality of a

cases where he has substantially a monopoly, has no appreciable influence over the price of the product he sells. Nor has he, so far as the wage earners are familiar with market conditions and reasonably able to take advantage of them, much control over the wages he has to pay. Even the monopolist, as to product, has competitors in the wages market against whom he must bid in seeking labor. In general, the individual employer can react to wages only by adjusting his demand for labor to the wages he must pay.

Consider, now, the demand for labor, of one of the farm owners in our hypothetical community. Assuming wheat to be $1 a bushel[5] and wages to be $300 a year,[6] the owner of farm A could profitably use four men and could use five without loss. His demand, with wages at this level, would be for four or five men. With wages less than $300 he would want five men. With wages more than $300 he could afford only four men.[7] With wages at just $300, he would be indifferent whether to hire four men or five.[8] With four men hired, the

particular kind of labor used in his business, viz., labor of management. (See Carver, *The Distribution of Wealth*, New York—Macmillan—, 1904, pp. 90-94).

[5] Net to the farm owner.

[6] Payable, we may now assume, when the product is sold. If the wage is payable earlier, a somewhat lower wage would be necessary to bring out the same demand for labor.

[7] In practice there are intermediate possibilities, such as hiring a fifth man for part time. As the principle of the solution given in the text is not changed by this fact, it will be better not to complicate our illustration with it.

[8] Someone may object that the extra bother of dealing with and directing the fifth man will prove conclusive against his employ-

total product of his farm would be 1900 bushels or $1900 of value and his wage bill $1200, leaving him $700 as interest on equipment and rent on land. With five men employed, the total product of his farm would be 2200 bushels or $2200 and his wage bill $1500, leaving, again, $700 of interest on equipment and rent on land. Since the fifth man receives if hired, as wages, just what his services add to the product that would be secured without him, the employer's net profits are equally great whether this man is hired or not. It must not be understood that the fifth or last man hired is of less ability or efficiency than the rest. It is not that the other men produce more and he less. What the illustration means is merely that, taking all five men to be of equal capacity and energy, the difference between having five men and having four to work on the given farm is less than the difference between having four and having three. This fact is but an exemplification of the law of diminishing returns.

Let us now suppose wages to be, not $300, but $400 per man. In that case the employer on farm A could afford to hire but four men (he might hire only three), making his product $1900,

ment. But by our hypothesis the fifth man makes the total product $300 larger than it would be with all the other labor necessary *except his*. The $300 is, in short, a *net* addition. For simplicity, we shall suppose the labor of management, if any is required, to be of equal productivity and to receive equal renumeration with the other labor involved. If, moreover, the farm owner works on his farm, he counts one among the number he can use in its cultivation, i. e., he is one of the four men or one of the five men employed, and himself receives one man's wages besides interest and rent.

his wage bill $1600 and his interest and rent return $300. It should be clear from this illustration that the individual employer's demand for men to work on a given area and with the aid of a given investment in equipment, is greater or less according as wages are less or greater.

Obviously, the ethical justification of the work for which labor is hired has nothing to do with the economic law under discussion, so long as men are found who will engage in any special business for profit and other men can be found to work for them for pay. Thus, a manufacturers' association seeking tariff favors at the expense of the public, would be likely to employ a larger body of lobbyists, and to hire more editors and popular writers for the purpose of influencing public opinion and getting what they desired, if these services could be secured for lower pay than if they must be got by the offer of higher pay. In such work it may be difficult to tell at what point additional workers are just worth the wages paid and beyond what point further employment of skill is not worth while. Yet it is not to be doubted that the principle involved is the same.[9] So, also, the manufacturer of a noxious drug no less than the manufacturer of a breakfast food, will hire men to work in a given factory, up to the point where

[9] The analogy with the previous illustration is closest when we suppose that additional writers or lobbyists would make less and less difference with the schedules. But if the choice were between getting the desired tariff favors *or none at all* and if only a trifle more influence was thought necessary to get these favors, then the desire for such additional influence might be very great whereas further influence beyond this might have no utility whatever.

further labor, in that factory, is worth no more than the wages which must be paid.

We are now ready to take up the direct explanation of how wages are determined in our hypothetical community. We shall suppose the number of men available for employment on the five farms to be twenty-one. We shall arrive at the rate of wages in the community by assuming various rates and seeing how each would affect demand and supply of labor. Suppose, first, that wages are $400 a year per man. Then not more than four men apiece can be employed on farms A and B since a fifth man increases the product by only $300. Nor can more than three men be employed without loss on any of the other three farms. Hence, at wages of $400 per man, not more than seventeen men could get employment. At wages of $400 per man, the supply of labor is very decidedly in excess of demand. Rather than remain idle, most or all of these men would work for less than $400. The competitive situation practically compels lower wages than this.

On the other hand, wages of $250 also fail to satisfy the condition of equilibrium. Wages so low as this would make it possible for the owners of A and of B to employ, each, five or six men, while C, D and E farms could use four or five apiece. There would be very considerable advantage in the employment of not less than five by A and by B and not less than four each by C, D and E. Hence, there would be active bidding[10] for

[10] In the absence of collusion, which would exists the less the larger was the community and the greater the number of employers.

twenty-two men and a willingness to hire, perhaps, twenty-seven. But, according to our assumptions, only twenty-one men are available. Therefore the demand for labor exceeds the supply and the bidding of employers must go on up to wages above which there is no further advantage to any employer in seeking to get labor away from others. It will readily be seen that wages of about $300 per man fulfill this condition. At wages of $300 or not much less, it would be possible, indeed, to get twenty-two men employed, five each on A and B and four each on C, D and E. But this does not mean that at $300 demand exceeds supply by one, for none of the five employers would bid over $300 to get any of these men away from any other. Thus, with wages at about $300, five men might be employed on farm A, five on B, four on C, four on D and three on E. This would mean that all twenty-one men were employed, yet the owner of farm E would not offer any higher wages in order to employ a fourth man but would be indifferent in the matter. Hence demand would not be in excess of supply.[11] And the wages which equalize demand for and supply of labor, which clear the market, are wages measured by labor's marginal contribution when all are employed. No one of the wage earners will receive more than his labor adds to the product which would be secured without his participation in the productive process. Of course it follows that in case the workers are

[11] In practice there would be the possibility of four men dividing their time among five farms. The mathematical economist will know how to develop refinements of this sort.

of unequal efficiency, instead of being, as above assumed, of equal efficiency, their wages will be unequal, each being paid according to his output.

Wages being thus determined, the remaining product on each farm, aside from the amount necessary to maintain fertility and equipment in its original condition, goes to interest on capital and rent on land. Let us suppose that the 2200 bushels or $2200 produced on farm A is net product, i. e., is all in excess of necessary repair and depreciation charges. Then, since the wages of five men at $300 each, aggregate $1500, there is left $700 as interest and rent. We have already, in a previous chapter,[12] seen how interest is determined. If we suppose return on accumulated capital to be at the rate of 8 per cent and the investment in improvements and equipment on farm A to be $5,000, then $400 of the product can be attributed to invested capital, leaving $300 as rent of the unimproved land. Capitalizing this rent on an 8 per cent. basis, we arrive at a value for the land exclusive of improvements, of $3,750.

Each wage earner gets, as wages, in a fair competitive market, what his labor adds to the product that would have been secured without him. And each accumulator of capital gets, as interest on that capital, what his accumulation thus adds to the product that would have been secured without the aid of his capital. But if, through the spread of habits of saving, the volume of capital increases while the number of wage earners does not, each wage earner's efforts will

[12] Chapter IV.

add more than previously to the product that would have been secured without those efforts and hence wages will be higher,[18] while, on the other hand, the marginal product of capital will be reduced and hence the rate of interest will be lower. It is desirable, therefore, *even in the interest of those who themselves save no capital,* that capital should be saved.

It should be added that proprietors' profits, the reward of self-employed managerial effort, are subject to the same law as other wages, i. e. they depend on the value productivity of the work done. If managerial ability of the highest order is scarce, its marginal product is large and profits will be large. If it is plentiful, its marginal product is less and competition must tend to lower profits. Managerial ability is sometimes, however, devoted to achieving success by price discrimination, by spreading false and malicious reports regarding rival goods, by making arrangements with railroads (rate discrimination) or with tradesmen which operate to exclude competitors' goods from the market, or by conspiring with competitors to form a monopoly and raise prices. Clearly, profits thus secured are related to the value of the services given to the public, only in the sense that the services given have a high value because the exclusion of competition forces the public to pay

[18] Though the case is perhaps theoretically conceivable in which the increased capital would take such forms as to increase greatly the demand for land and increase rents but not wages. However, should the conclusions of the next chapter be accepted and applied, increase of capital would even in this extreme case be advantageous to wage earners.

high prices for them. The profits realized are gained *by doing the public an injury*[14] and the methods followed should be effectively prohibited. There is no intention, of course, to deny the possibility that employees as well as employers may receive remuneration for, or remuneration which is enhanced by, anti-social activities.

§ 2

Influence of Physical and Influence of Value Productivity on Wages

Enough has been said to make it clear that wages in *any given line* are measured by the marginal *value productivity* of labor in that line. Though the marginal physical productivity of labor remained at 300 bushels per year in agriculture, agricultural wages would nevertheless fall if the price of wheat per bushel and the purchasing power of wheat over other goods should fall. If, therefore, an increased per cent of the productive labor of the world should go into the raising of wheat, we should expect the remuneration of labor so engaged to fall, even though available land for the purpose was so unlimited and so equal in goodness that the number of *bushels* produced per man occupied in wheat raising remained the same.

If, in a country which is fairly well populated and which has reached, therefore, as to its agriculture, the point of diminishing returns, an increased number of persons in agriculture must

[14] Cf. the author's *Principles of Commerce*, New York (Macmillan) 1916, Part III, Chapter VII, § 4.

bring a diminished proportionate physical product, this may not be equally true of all or, possibly, of any lines of manufacturing. England, for example, which, presumably, long since reached and passed the point of diminishing returns in all kinds of agriculture may still, with regard to much of its manufacturing, be in such a situation that more labor devoted to such manufacturing would yield a physical return in direct proportion or in nearly direct proportion to the increased labor so applied. Nevertheless, a sufficient increase in the number of persons engaged in these various lines of manufacturing might so decrease the marginal *value* product of their labor as to necessitate low wages. The increased supply of the goods thus produced would tend to lower the prices of these goods and hence to lower the returns which those engaged in producing the goods could hope to receive. We may conclude, therefore, that the reduction of *per capita* returns with increase of population in agriculture, tends towards lower wages even in manufacturing since, if it did not, an influx of persons into manufacturing would occur, lowering relatively the prices of manufactured goods and raising, relatively, the prices of agricultural products.

We must not conclude, however, that the returns to labor are necessarily as low (or as high) in a manufacturing as in an agricultural country. Labor does not flow freely from one country to another. Furthermore, the people of the manufacturing country may be highly efficient and they may be few in proportion to the demand for the goods they produce; while relative incapacity or

lack of resources for manufacturing may keep the people of the agricultural country from providing themselves or third and fourth countries with manufactured goods.

§ 3

Comparative Wages in Different Labor Groups

Something should be said regarding the relation of wages in one labor stratum to wages in another, e. g., the wages of skilled as compared with the wages of unskilled labor. It will, of course, be true that both the skilled and the unskilled workmen's wages will be fixed by the respective marginal value products of their labor. But the value of the goods produced by the skilled labor is relatively high just because such labor is relatively scarce. The higher wages of skilled labor or of intellectual labor requiring considerable training are really due, then, to the relatively limited amount of such labor available.

The chief reason for the comparatively large amount of unskilled and the comparatively limited amount of skilled or highly trained labor (in relation to the demand for it) is the cost of training.[15] Unless the larger wages to be secured by training make up, in the average life time, the cost of this training plus interest, entrance into the skilled work will seem to many or to most, not worth while. Frequently the present deprivation

[15] Limitation of apprentices enforced by an interested labor group against would-be future competitors may also be an influence not without significance but, probably, of much less importance than the cause discussed in the text.

which must be suffered to meet the cost of training seems much greater than can be compensated by the larger later earnings to be so gained. To many, indeed, the cost of training is practically prohibitive.[16] They simply *cannot* make the investment. Could funds be borrowed for this purpose at the current rate of interest charged on well-secured loans, the investment might pay much better than investments of other kinds. But the possibility that the borrower will become sick, or will die (though life insurance sometimes provides for this second contingency), or will simply fail to "make good," makes the security uncertain and the funds hard to get. In these days of compulsory education up to 14 or 16 years of age, of night schools and of correspondence schools, possibilities exist for many who refuse to take advantage of them. But the opportunities of the poor boy are hardly roseate. To work daytimes and study nights is much harder than to be supported by high-salaried fathers whilst securing the training for a life work. For some, despite ambition, the physical strain is prohibitive. For all in such circumstances, the securing of the preparation essential to the higher grade of work means years of deprivation of rest or pleasure or both.

The possibilities, however, are considerable for young men who are willing to defer marriage and the rearing of a family until after thirty. Indeed, marriage is not incompatible with self-accomplished success if children can be foregone until some

[16] Cf. Cairnes, *Some Leading Principles of Political Economy*, New York (Harper), 1874, pp. 65-68.

degree of preparation for more skillful work has been achieved. For both man and wife can then be remuneratively employed a part of the time and can make enough to pay for the leisure and expense necessary to train one or both the rest of the time. But to forego for so many years the satisfaction of one of the strongest animal instincts is, for most, too great a sacrifice. Unless the instinct can be satisfied and yet reproduction prevented, the opportunities of movement upward in the ranks of labor are likely to be much less availed of than might otherwise be the case. For various metaphysical, textual or conventional reasons, large masses of people believe the satisfaction of the sex instinct, when means are used to prevent conception, to be wrong. Obviously the utilitarian cannot jump to this conclusion. If consistent, he must test such means or practices by their effect on aggregate human happiness. He is bound to regard as desirable and as moral a policy or practice the tendency of which is to increase this happiness. The questions he would naturally ask regarding birth control are, first, whether it is desirable that the number of births in general or in certain classes or in certain families should be limited, second, if such limitation is desirable, whether the potential parents are happier in satisfying the sex instinct and preventing conception by artificial means than they would be to deny themselves such satisfaction, and third, whether artificial prevention of conception is necessarily injurious and, if so, whether it is injurious to such a degree as to offset the individual and social advantages resulting from it. If it is answered that restriction of births is often

desirable, that the exercise of the sex instinct under such circumstances is a means of happiness and that the restrictive means may be so chosen as to have no injurious physiological effects of corresponding consequence, or, perhaps, no injurious physiological effects at all, can the thoroughgoing utilitarian do otherwise than approve birth control?

To the contention that general knowledge of the possibilities of birth control might result in an increase of promiscuous sex relations it may be replied that the earlier marriages thus made possible for persons who can not afford to risk having large families early in life, would greatly diminish, for many, the temptation to promiscuity. It is not promiscuous sex relations, but marriage, that usually brings to the male the responsibility of supporting children. It would seem reasonably certain, therefore, that for him ability to postpone the having of children until easy circumstances make them desired would tell in favor of matrimony and against promiscuity. But the opponents of birth control may believe, not only that there are other objections to promiscuity than the likelihood of children being born for whom no fathers can be made responsible, but also that these other objections are not of a sort to impress very much other persons than themselves. The opponents of birth control, in their superior wisdom, see these objections, but the masses of humanity, not being competent to manage their own affairs except when kept ignorant, by force of law, of some lines of action they might else desire to follow, cannot see these other objections and so might take up promiscuity. If indeed there are no reasons for

objecting to promiscuity other than the danger that some children will have no definitely ascertainable fathers and if birth control removes this danger, then promiscuity must cease to be objectionable. But if there are other important objections to promiscuity it is entirely conceivable that the advocates of birth control and the masses generally are as capable of understanding them and being influenced by them as those to whom birth control is anathema.

In another aspect than the one already discussed does the matter of birth control touch the comparative welfare of different economic classes. Prosperous parents who can afford to give and do give their children the training necessary as preparation for the more remunerative kinds of work have relatively few children; while the poorer class of parents whose children can have little training have relatively large families. Not only would birth control among unskilled and slightly skilled wage earners enable them as individuals to fit their children for better jobs than their own; but also, even if they did not so educate their children it would tend to raise the wages of these children when they arrived at maturity since it would lessen the number of unskilled and slightly skilled wage earners. The knowledge required for birth control, although law prohibits its dissemination in the United States so that it is not easily available for the masses, is familiar to many if not most persons among the professional classes. They can and do regulate the number of children they shall have. It may be added that they do so in full consciousness of the fact that under present condi-

tions there is a great gulf between professional earnings and the earnings of ordinary labor. They endeavor not to have more children than they can afford to educate for the professions or the higher positions in business. Were the birth rate among unskilled and slightly skilled wage earners lower, the number of children they could put into the higher grades of labor greater and, in any case, the number of children who must at maturity or sooner go into the lower grades of labor smaller, were the differences in wages of so-called high grade and so-called low grade labor thus reduced to a minimum, then it would not, perhaps, appear so unfair as now, to parents of the professional and business enterpriser class, to have more children than they could afford to educate for that class. Aptitudes might have more to do, in all families, and financial obstacles less, with the choice of future work by the children.

The subject of population and birth control is intimately related to the proper justification of child-labor prohibition. It has sometimes been objected by opponents of child-labor laws that to prohibit the labor of children may so limit the incomes of some families as to deprive the children themselves of proper food. The argument runs to the effect, therefore, that the prohibition of child labor may be more cruel than the permitting of it. The families affected need the food, the clothing, etc., which the children earn. Particularly are the earnings of the children needed when the number of children is large so that the father cannot properly support all. Superficially this argument may be plausible. But the fundamental

consideration which it overlooks is that *permitting child labor makes families large.* To many a father willing to put his children to work at an early age these children have become an economic advantage. He has lived in comfort, in semi-idleness, perhaps in drunkenness, off of the earnings of their unhappy child efforts. To plead the necessity of child labor as an aid in the support of such families, is to be plead the necessity, as a palliative, of the very cause (in large part) of the evil. If child labor is sternly prohibited by law, the prohibition has the advantage of putting squarely upon parents the responsibility of supporting their children and of discouraging their having more children than they can comfortably support. Such a policy, coupled with unforbidden dissemination of methods of birth control, would go far to prevent multiplication of numbers in the now low-paid labor groups, with the consequent low wages, poor living and absence of opportunity. If the economic well-being of an entire community is to be maintained at a high level, perhaps nothing is so important as to establish the principle that those who bring children into the world must provide these children with a childhood not wholly devoid of opportunity and of happiness, and therefore, by implication, that they must not have more children than can be so provided.

§ 4

A Side Light on the Interest Problem

The chapters on interest[17] have, it is hoped, made it clear that interest, provided the capital for the use of which it is paid is not used in anti-social ways, is earned in just the same sense as are, with a like proviso, the wages of labor. The waiting yields a service to the community worth as much as the interest received, as truly as the labor yields a service worth as much as the wages received. The person who works and saves is, to the extent that this saving operates in aid of production, just as good a servant of the general welfare as the person who works more but saves less. Contrary to the view of orthodox socialism, interest as such is no more robbery or exploitation than wages. Nor would there probably have arisen so considerable an opposition to it *if its enjoyment were widely distributed among the masses in any such degree as the enjoyment of wages.* Interest appears to lack justification to many because it seems to be connected with a narrow class interest.

At just this point we need to recur to our discussion of comparative birth rates. The reason why large classes of the population cannot enjoy interest is because their wages are low and because their families are large. Their wages are low because they have many competitors in their unskilled work and they have many competitors because the previous generation of unskilled laborers had relatively large families and could help

[17] Chapters III and IV.

few of their children into better paying kinds of labor. Fewer children in this class of the population would make accumulation of capital possible to them in just the same way that it would make possible the investment of larger sums in the industrial training of their children. And fewer children among wage earners of this class would mean, in a generation, not only smaller expenses for the bare necessities of life, but also larger wages from which to make savings. If we can, eventually, stamp out exploitation and if we can, at the same time, intelligently control population changes, there need be no reason why any family may not have some accumulated capital and receive an interest income along with its labor income and, at the same time, labor incomes may reasonably be expected to become less unequal than now. If, with the way of hope thus open to each family, some refuse to profit by it, we can hardly conclude that posterity will be benefited either in stimulus to ambition or in the greater inheritance of desirable traits, by a policy which would take a part of the earnings of the ambitious, the capable, the industrious, the far-sighted and the saving, in order to increase the already too numerous progeny of those who possess none or few of these virtues.

There is no intention here, to suggest that interest or, for that matter, wages, constitutes an income of a peculiarly sacred sort so as, for example, to be an unfit subject for taxation. Government, which serves all of us, needs funds to do so and, *if no better and adequate sources of revenue can be found,* it may properly enough tax

both interest and wages.[18] But there *is* the intention to emphasize the similarity of interest and wages so far as the giving by the recipient of a *quid pro quo* is concerned, and to suggest that wider and unimpeded spread of knowledge and ideals, increased emphasis on parental responsibility, and, along with these things, the effective prohibition of all forms of exploitation, may do much that so-called *corrective taxation* has been called upon by its advocates to do, and may do it better and with less of offsetting evil.

§ 5

General Wages and Population

Even if it were possible to get the most desirable proportion of the population in each kind of work and in each class or stratum of labor, this would not alone solve the population problem; population *as a whole* must be reasonably limited. Invention may for a while go on so rapidly that a larger population can be better fed than a smaller one was before. Inventions and discoveries of some sorts make it desirable to devote more time to less land, for example, the discovery that spraying trees leads to their yielding of more, larger and better fruit. Inventions and discoveries of such a kind may mean that a larger population can secure as much per capita as, with the same degree of skill and knowledge, a smaller popula-

[18] Least of all can any class able to pay largely, fairly claim exemption when the nation is in peril from foreign foes and when lives must be sacrificed as well as incomes. A source or sources of public revenues ordinarily ideal may then prove insufficient,

tion could secure. But not all inventions and discoveries work to this effect. Some, for example the invention of much of agricultural machinery, enable fewer people effectively to utilize larger areas. The consequence of such inventions is that a large population is relatively superfluous, that the additional men add relatively little to the total product of industry, that the point of diminishing returns is passed when with the same population and less advance in the mechanic arts it would not be reached. This conclusion is not inconsistent with the fact that the inventions in question may enable the existing population to be supported in greater average comfort than before.[19] Our conclusion is simply that the gain from those inventions which enable few people to utilize larger areas would often be greater per capita were population smaller. It is not necessary, therefore, to show that increasing population always involves increase of poverty, to make reasonable an opposition to the growth of numbers. If it be merely shown that per capita wealth is likely not to increase as rapidly or as far with development of the arts of life, in the case of a larger population as in the case of a smaller one, the desirability of the smaller population may be sufficiently established.

But what is our standard or test of an ideal population? Would we prefer that there should

[19] Though there may be effects on distribution such that landowners as such derive most or all of the gain, or more than the gain. See Henry George, *Progress and Poverty*, Book IV, Chapter III.

be in the United States 75 million very happy persons, 150 million moderately happy persons, or 300 million persons whose average happiness is slightly better than zero? Is the greatest *aggregate* surplus of pleasure over pain our desideratum or is the greatest *per capita* surplus of pleasure the thing to be aimed at? The former would probably be realized with a density of population somewhat greater and a *per capita* income somewhat less than the latter. If we suppose that the greatest *per capita* happiness is the thing to be sought, it is likely that the desirable degree of density of population is such as, on a given stage of technological development, will make for the largest possible *per capita* product with the smallest *per capita* effort.[20] But in any case and according to any reasonable test the ideal population is almost certainly *not* the maximum possible population.

It is not to be expected that the ideal population will ever be exactly attained for the world as a whole or for any part of the world. If the number of children to a family comes to be a matter of individual judgment and choice, with free diffusion of knowledge as to how the desired number may be made the actual number, population will probably tend to adjust itself in the direction of the greatest *per capita* happiness. It is to the interest of the individual and of the family that individual well-being and family well-being should become the

[20] Allowance must be made for the fact that what is the ideal population may change as knowledge of the arts of life changes. The ideal population in this generation *may not be* the population which is best for the men and women of this generation but may be one which can easily grow into or decline into the population which is best for later generations.

greatest possible. It is not unreasonable to suppose that the greatest *aggregate* net happiness would also be greater were births so restricted as to avoid some of the abject poverty which now results from too rapid increase in certain families and classes.

§ 6

Immigration and Wages

Even if the people of a country adopt a rational attitude toward the population problem, the possibility of overpopulation from immigration has still to be faced. Thus, a policy of limiting offspring among the present population in the United States in the hope that the next generation would not find competition too severe, might have its intended results negatived by an inflow of labor from other countries. The children of races which had applied no such limitation might come in to inherit, in part, the land whose small population the intelligence of its people had made possible, and to decrease largely the gain resulting from such intelligence. Immigration may offer a continuing prospect of gain to the landowners of a country but it holds out no general promise of gain to native wage earners.[21]

§ 7

Summary

We have seen that wages are fixed by demand and supply at such a point that wage-earners tend

[21] Cf. the author's *Principles of Commerce,* New York (Macmillan), 1916, Part II, Chapter VI, § 3, footnote.

to receive the marginal value product of their labor. The value of the goods produced by some classes of labor is low and the wages of the laborers are low simply because these laborers are numerous and products of their labor relatively too plentiful. These classes of workers have so little surplus spending power that they can not usually afford the cost of raising their children out of their own class. Nor do they sufficiently limit the number of their children, on the average, to reduce the labor supply in their own class in the next generation and so make necessary higher wages for that class. Limitation of size of families would help them to aid their children more effectively to prepare for other work and, even if it did not, would eventually raise the wages for the work in question. A better relative adjustment of numbers in different labor groups would also make possible a more widespread accumulation of capital. Interest is earned as surely as wages are earned, if the test is the giving of a *quid pro quo* by the recipient. But interest is not so generally enjoyed and hence is looked on by the masses with less favor. The ideal perhaps is that every family should receive an interest income as well as a wage income. Population in general needs to be limited as well as population in special groups, in order that average prosperity and happiness may be high. This may necessitate for low birth rate countries restrictions on the too free immigration from countries whose inhabitants multiply with little regard to economic consequences.

CHAPTER VI

THE RENT OF LAND AND ITS TAXATION

§ 1

Land Rent as a Marginal Product of Land

In the previous chapter[1] we had occasion to suppose the existence of a piece of land on which the labor of five men working with the aid of improvements and equipment worth $5,000, produced a yearly product above repair and depreciation costs, of $2,200. Of this $2,200, wages constituted $1,500, interest (at 8 per cent.) $400, and $300 a year remained as rent. This $300 measures, roughly, the amount of rent the owner could secure from a tenant. It is the surplus produced on the land, above the remuneration of the labor and waiting used. But we have seen that the remuneration of waiting, the interest on capital, is fixed by demand and supply at a point where it equals the marginal productivity of waiting.[2] We have likewise seen that the remuneration of labor is fixed by demand and supply at a point where it equals the marginal product of labor.[3] Hence, to say that a piece of land yields per year a surplus of $300 over interest to waiting and wages of labor is to say that it yields a surplus of $300 above the marginal product of such waiting and

[1] Chapter V, § 1.
[2] Chapter IV.
[3] Chapter V, § 1.

labor. Let us suppose this particular piece of land to be non-existent. Then the labor and capital applied upon it must needs be applied on poorer or less well situated land not previously used, or this labor and capital must be applied to using more intensively land already in use. Applied in either of these ways, such labor and capital would produce $300 less than could be produced if the labor and capital were applied to the $2,200 yielding land. In other words, the $300 is the product of this particular piece of unimproved land *in the sense* that the existence and use of this piece of land makes it possible for a product $300 larger[4] to be secured with no more labor and waiting, simply because the land resources to which the labor and waiting are applied are that much better than the margin at which the labor and waiting in question must otherwise be applied. But although $300 may thus be regarded as a contribution of the land to production, it is not on that account to be regarded as a contribution of the land-*owner* to production.

It is to be emphasized that the rent of city land is determined in just the same way as the rent of land in the country. The well-located merchant derives a larger return from his business

[4] By way of qualification it may be said that this differential is not fixed but is greater for some potential users of the land than for others. Some users may be able to gain from the use of a piece of superior land much more than they have to pay. To others, the differential is less than the rent and they will presumably use inferior land. The marginal productivity of the land is its productivity to the user who is just induced to hire it and who, if rent were greater, would have to resort to poorer land.

as a retailer or a jobber by virtue of his superior situation. So, also, the manufacturer whose business is wisely located in relation to sources of power and to shipping facilities derives from such a location advantages for which he may be willing, if necessary, to pay a high rent and for which, if the desired location is equally advantageous to others, he will have to pay such a rent. In the case of either country or city land it is here intended to regard as land rent only the amount which is the marginal product of the land as such. Interest on the cost of improvements, whether swamp draining and fertilizing in the case of farm land or filling and leveling in the case of city land, is not properly a part of the rent of land but is a return on capital investment.

The amount of rent which landowners can get for the use of their land appears to be pretty definitely fixed by the conditions of demand and supply. Attention is commonly called, by economists, to the fact that a tax on land rent can not be shifted. The owner of the land cannot, when a tax is levied, get any more rent. The tax does not increase the marginal product of the land. It does not decrease the marginal product of waiting or the marginal product of labor. It can not make interest lower or wages lower. It cannot, therefore, increase the difference between the total product of the land and the amount going to capitalists and wage earners. It does not make land space any scarcer. The tax-paying landowner can even less afford to keep his land idle than the landowner who is untaxed. It does not

decrease the quantity of goods produced on the land and does not increase prices. It simply leaves the landowner with a smaller income by the amount of the tax substraction. A tax on interest *might* diminish saving and make interest, eventually, higher. A tax on wages, especially if heavy, might diminish population and so make wages, in a later generation, larger.[5] But a tax on rent can have no effect other than to diminish the amount of revenue received by landowners and give this revenue to the general public.[6] It should be said, however, by way of qualification, that when the so-called "rent" results not chiefly from a favorable situation or other conditions independent of the owner's labor but in part from a fertility which has to be maintained by the owner, some shifting may take place. (Return on improvements due to labor, is properly *interest* on capital.) But a tax upon the *situation* rent or value of

[5] This suggests the Physiocratic doctrine that all taxes must inevitably be borne by the landed proprietors of a country, through diminished population and lower rents. The conclusion may be (and may not be) largely true, if we include owners of urban, etc., as well as agricultural land, as the Physiocrats did not. But a tax on wages thus shifted to landowners will fall upon them in very different proportions than a direct tax levied as a percentage of rental value. The former will fall much more heavily in proportion on the owners of near-marginal land and the latter will fall with equal proportionate weight on the owners of superior land.

[6] To appropriate rent in taxation provided land is used for some purposes but not if it is used for other purposes, would discourage the former kinds of uses and encourage the latter. See the author's *Principles of Commerce,* New York (Macmillan), 1916, Part III, Chapter III, § 4. Such a tax must, therefore, result in a degree of shifting.

land, or upon the rental value resulting from any natural and indestructible advantages, falls upon the owner and upon no one else.

§ 2

Land Rent Versus Capital Interest

An examination of the justice of special land-value taxation may advantageously begin with a brief consideration of the difference between rent and interest. The distinction between them has been elaborated elsewhere[7] and need not, perhaps, be long dwelt upon here. It is sometimes said that the rent of land is no less interest than the return on other capital, since the return on land can be viewed as a given percentage on a given valuation, while on the other hand, the interest on other capital can be viewed as an absolute amount in dollars per machine or factory, just as land rent is viewed as so many dollars per building lot or per acre a year.[8] But more fundamentally there is a difference, despite the superficial resemblance, between situation rent and capital interest. The return on land should be looked at as an absolute amount measured and determined by the surplus over production on the extensive or intensive margin. It is not determined by the value of the land. Neither has the value of land as such, i. e., *its situation value apart from improvements,* any relation to any cost of production, since the land was not

[7] Chapter IV, §§ 3 and 5.

[8] This view seems to be presented in Fisher, *The Nature of Capital and Income,* New York (Macmillan), 1906, pp. 184-188.

humanly produced. On the contrary, the value of the land can be arrived at only by discounting its expected future rents or returns at some previously found rate of interest. Thus, a piece of land which would yield $5,000 per year net rent (above taxes, wages of labor employed, interest on the capital invested in buildings and other improvements, and insurance) would be worth, if interest were 5 per cent, $100,000. Were the current rate 10 per cent, such a piece of land would be worth but $50,000.

With equipment of the producible and reproducible kind, however, the relation between capital and income value is not the simple one above outlined. The value of such capital, though not unaffected by the value of its expected services, is very directly related to the cost of its production. Buildings of a type costing $5,000 each will hardly be put up to sell for much less, as a rule, by the builders. Nor, so long as the alternative is open to him of supervising the construction of a similar building, will a possible buyer care to pay a great deal more.[9] The value of a building is determined then, in large part, by the expenses, such as wages, of producing the materials and of putting it up; and these wages are determined, in the last analysis, by the existence of alternative lines of activity open to the wage-earners, while the other costs are determined by the alternative

[9] If he purchases a building already constructed he pays, in its cost, for the supervision of its construction.

uses to which the *land* or *capital* which must be used in producing the materials might be put.[10]

Since the value of produced and reproducible capital is thus in large part fixed directly by its cost of production, the assertion that interest is in large part determined by the rate of productivity of capital does not involve reasoning in a circle. Interest is 5 per cent because, for one and perhaps the most important reason, capital worth $10,000 will produce an annual net income of $500. It therefore appears, to sum up our conclusions thus far, that the value of produced capital depends in a considerable degree on cost of production, that the ratio between the value of capital and its income is an important factor in determining the general long-run rate of interest, and that this rate of interest is an essential element in the valuation of land.

§ 3

Land Rent as an Unearned Income

It is but a short step to the conclusion that the accumulators of produced capital may—and in many cases doubtless do—add to the volume of the annual aggregate income of society as much as they take out of this income in interest; while the owners of land, as such, contribute no service in return for their income. Whereas, in the case of produced capital, the public (except in certain cases, numerous enough no doubt, where the

[10] Cf. Davenport, *Economics of Enterprise,* New York (Macmillan) 1913, pp. 61-66.

capital is wastefully or injuriously used) pays the owner for a service which, without his saving (or the saving of someone whose right to payment has been transferred to him), would not have been enjoyed, in the case of land the payment is made for a benefit which is dependent on no individual's saving or effort and a benefit for which, therefore, no individual is responsible. In the one case the community pays for a service which is actually rendered to it. In the other case it pays people who have, in the capacity in which they are paid, rendered no service.[11]

To avoid any possible misunderstanding, let it be emphasized that land rent as here defined does not

[11] The view presented so consistently in this book that incomes received not in payment for service rendered lack social justification will, of course, not be accepted by the Junker type of mind. More or less plausible arguments may again be advanced as they have often been before, in favor of incomes to privileged classes. It will be alleged that members of these classes, not having to worry about their livelihood, will become efficient officers of state, scholars devoted to research, and, in other ways, profitable social servants. To the argument that if a class is to be supported without definite regard to a special service for which their income is received, in order that such results may accrue, the public might select in a better way the individuals who should make up this class, it will doubtless be replied that, in practice, the public will not select in any such manner as to give equally good results. Or the supporters of a privileged aristocracy may go a step farther and defend its existence, not by virtue of any alleged superior social service, but as being good in itself, as a class for the good of which other classes exist, as constituting "the backbone of the state." To one who accepts either view above outlined, no argument against exploitation will be convincing, especially if the exploitation is of an ancient sort and has the prescriptive sanction of long usage, as is the case with land rent.

mean merely the sum paid by a tenant to an owner, for the use of land, but equally the amount received by the person who himself uses his own land, in excess of wages for his labor and interest on his capital. This rent comes to him in money when he sells the goods or services which the land produces. He is paid, thus, by others, for benefits which not he but the land renders. The community, in buying from him, pays him for more than the service he and his "waiting" render them.

But, it may be said, at least many of the present landowners are persons who have made their savings from what they have earned and have chosen to invest their savings in land rather than elsewhere. Have they not, in their savings, given the community as much value as they draw in rent? The answer may well be that they have given, to that part of the community from whom their rent income is derived, nothing whatever. If A, who has saved $10,000, uses it to buy a piece of land from B, he is merely paying B for the privilege, previously enjoyed by B, of receiving rent from others for the use of something that neither he nor any other individual produced and the use of which would be equally available had no owner or purchaser of land ever been born. In turn, B has now the $10,000 of accumulations and it is quite possible that he may use it in some way that will increase the annual product of industry. If so, the community, or some members of the community, will come to be paying B, in interest on capital, for services which,

without A's saving, would not have been available, while they will be paying A, in rent, for benefits from the use of land, which are not due to any individual's work or savings. If, before, the community was paying the landowner B a rent while getting no service that could fairly be regarded as coming *from him,* now it is making payments to both A and B, as rent and interest respectively, and receiving services in return from only one. If, before, B the landowner was a pensioner to whom the community gave something for nothing, now A has become the pensioner, having bought out B, and is receiving, from the rest of the community, something for nothing. For it should be clearly evident that the $10,000 paid to B for the land is not a service rendered to C, D, or E, who are the persons that have to pay A for the use of the land. Yet much of emphasis is commonly directed to the assertion that the land-using part of the community ought to pay rent to landowners *because* these landowners have in many cases paid previous landowners for the land and despite the fact that none of the landowners in the series can be said to have rendered any service to those from whom they collect rent payment. In other words, it is asserted that C, D, and E ought to be obliged to pay A for no service rendered by him or by anyone, simply because A previously paid $10,000, not to C or D or E, but to B. Is such a doctrine good utilitarianism? Is its application good social policy?

§ 4

Improvements by Special Assessments and the Right of Landowners to a Rental Return

Nevertheless, to assert that in practice the landowner, as such, never performs any service for which he is entitled to a return in payment for the use of his land is going too far. If he is entitled to nothing else, he is usually entitled to a return on the cost, to him, of improvements (such as cutting through and paving streets) met by special assessments. These assessments are customarily made on all owners of land where a street is to be put through or paved, on the theory that they derive a special benefit from the improvement, a theory which is generally in accord with the facts. It would seem that there is much the same reason for the owners of land which is, in effect, improved by such expenditures, to meet them as there is for farmers to pay the cost of fencing and manuring their own land.

That the benefit of this street building (as of social growth) goes to the landowner as such, and not to the owner of buildings on the land, should become apparent when it is realized that a building, apart from its situation, can hardly go much above the cost of putting up another like it. Suppose two building lots side by side, each worth $2,000. On one, a $5,000 house is put. The other stands vacant. If the building of a street or the growth of the community makes the combined house and lot worth $9,000, is not the added $2,000 an increase in the value of the land? If there is no

change in the cost of putting up such a house, will not the adjoining land (on which an exactly similar house can be built for $5,000, to sell, with the lot, for $9,000) immediately come to be worth $4,000? A house or other building unwisely located where it cannot be used may come to have less value than its cost, by the necessary expense of moving it, or, if it is not movable to a desirable locality, by an indefinite amount. But a house, as such, can hardly increase in value much above its cost of duplication. Analysis seems to show that the increase inheres in the site.

If, then, on the basis of this fact, the owner of land is compelled to bear the cost, or most of the cost, of the improvements made, it seems but reasonable that he should be allowed to enjoy some return on his investment in the expense of paving or other improvement, if any such return is forthcoming. This does not mean that he is entitled to secure all the value that results from social growth, or, perhaps, any of the value so resulting, but it may mean that he should be regarded as the owner of, and is entitled to interest on, the difference between what the value of the land in question would be to a prospective purchaser by whom the costs of improvement had still to be met, and the value to a purchaser after such improvements have been made. In short, the investor is entitled to a return—if the land can ever be made to yield it—on the expense to him of the special assessments.

It seems clear enough to the writer that a not very excessive rate on such expenditures for street-making, etc., will compensate owners on the aver-

age for any risks that their land may, in certain contingencies of population-shifting, yield less than an average return on such expenses. If, however, a group of lot-owners take steps to have a street cut through long before there is need of it and therefore find that a return on this cost cannot for some time be had, it does not follow that these owners are entitled to get, out of the increased value which later may result from social growth, all the interest lost during the interval of waiting.

That the value of city land usually includes more than can be accounted for by the expense of such improvements is evident if we call to mind the value of well-situated land where such local improvements have not yet been made. A piece of land in a great city, situated where the building of a street was contemplated but not begun, might well be less valuable by only about the cost of the necessary assessments than if the street were there. Without doubt it is sometimes true that improvements such as street construction *start the fashion* of living in a given section of a city and so bring up the value of sites there by far more than the cost of the improvements. But it is also true that the outward pressure of population or the building of a railroad or trolley line gives value to the unimproved land in the absence of streets, and makes the putting through of the streets worth while. In this latter case the causal influence runs the opposite way. It is the conditions leading to increased value, and the contingent possibility of deriving from the land an income previously not obtainable even if improvements had been made, that give rise to the street-cutting movement.

Our conclusion seems to be that owners of land are entitled to a return on their investments in improvements, such as special assessments for cutting streets, in the same sense and to the same degree that they are entitled to a return on the cost of building houses or factories; that, however, they are no more entitled to a socially guaranteed return in the one case than in the other;[12] and that there is no reason why they should be allowed more than enough, on the basis of such expenditures, to make the expenditures worth while. It does not follow that the sums required as special assessments or purposely invested by land speculators in street building, etc., are not fairly subject to tax in the same way as any property is subject to tax, but only that whatever reasons there may be for *special* taxation of land values in general do not apply to the part of land values clearly due to such investments any more than they apply to the part of farm land values due to the owners' expenditures in fertilization.

§ 5

Other Services of City Landowners

Are there any other expenses met or services performed by the city landowner which are to be regarded from the viewpoint of the land-value-taxation philosophy as entitling him to some exemptions? Does the landlord, for instance, per-

[12] Except as the community compels them to make improvements at their expense in advance of their own desire to do so.

form a service worthy of a share of economic rent by "managing" the land? Is the joint activity of landowners in a given section, in determining the class or race of tenants who may live in such a section, or attending to other matters of common interest, a service entitling them to the enjoyment of rent? Some of this activity or attention is needed only when the land is used for residential purposes, and perhaps might be given, under some arrangement for a percentage consent in favor of new residents, by tenants instead of by landowners as such, or, as is sometimes the case in a limited degree, by municipal ordinance. The desired protection of tenants in the matter of neighbors is but inadequately given when even two or three landlords, by departing from a general understanding, choose, for a profit, to admit undesirables as tenants or purchasers. Municipal protection might not, in a democratic community, be much better, but it probably would not be much worse. At any rate, any service of this sort yielded by landowners does not entitle them to more than a very small fraction of the annual rent of the land. To say that it is worth all the rent in every case is to say that it is worth much more in a metropolis than in a small town. And to say that all the rent is earned by such service is to say that the cost and trouble of rendering the service so offsets the rent as to make the value of the land (the amount that a purchaser would pay for the future enjoyment of the rent) zero.

Another view is that the rent of land, instead of being, aside from interest on special assess-

ments, altogether an unearned increment, is partly a compensation for risk and a stimulus to seek out and bring into use desirable locations. In such a view, it might be argued that the real estate dealers who develop a new section of a city or a city suburb for residential purposes risk getting but an inadequate return; or the capital put into improvements may be, if the new section proves to be wholly unpopular, entirely lost. Must there be a chance for a corresponding gain of the so-called unearned-increment variety in order that the improvements desired shall be made?[13] And if the possibility of surplus gain needs to be kept open to the land speculator, must this gain include all the rental value of the land for all future time? Is the fact that a given speculator foresaw, earlier than others, the possibility of developing certain sites, and thus hastened the flow of business or population to them, a reason why later generations of business people or of residents, to whom the early bringing into use of the land is no advantage, should have to pay him for the privilege of working or living on it? Of what service is such earlier development to these later generations, that they should have to pay an extra rent for the space used, in order to compensate, for an early risk of loss, landowners or the descendents of landowners who took risk by, possibly, premature building in a new section? So long as this section is now built up and available for business or residence, its having been built long before their use of it is probably of no advantage to present users. If

[13] Cf. Hadley, *Economics*, New York (Putnam), 1896, pp. 287-291.

these present users must pay more in consequence of such early development, the landowner is presumably receiving payment from persons to whom neither he nor his predecessors have, as landowners, rendered a corresponding service.

In the case of inventions and patents, we limit the time during which the inventor is to enjoy a special profit on his idea, our philosophy being—partly, at least—that after a few years the general progress of knowledge would be likely to bring the essential idea involved to someone else or to several, and that the general public or that part of the public using the invention cannot be regarded as perpetually indebted to the patentee. May not the discovering of, and the calling of the community's attention to, the value of new sites be a service of this limited kind? Can it be supposed that the residents of a city would forever, and despite increase of numbers, be indifferent to the advantages of living in "Hillcrest," "Riverview," "Countryside," or "Eastville"? For how many generations must the public pay the descendants of, or the purchasers of land from, those who first emphasized or advertised the advantages of these sections for the service of thus advertising them? It is, indeed, quite possible that the land speculators who first, by their advertising, induced population to move into a new section, have sometimes performed a disservice rather than a service, by unduly hastening a movement which would have normally come somewhat later.

Another point sometimes emphasized in the case of patents is that a limited period of special

profit is enough to induce the invention and its exploitation. It is unnecessary, therefore, to make the public pay this excess profit forever. May not the same conclusion apply in the case of the service of landowners in calling attention to the advantages of special sites?

Even if we should decide that this particular kind of service was of no value and that we did not wish population or business location to be affected by the activities of land speculators, and even if, therefore, we allowed no part of the rental value of land to go into private hands to pay for such services, there would need to be no fear that houses and other structures would not be built. Obviously, a certain intensity of demand and willingness to pay rent for houses, etc., on the part of tenants, would yield a sufficient average return on the cost of building to make investors willing to take the risk of building in places where there was reasonable probability of the use of the houses, and this without any prospect of realization of situation rent as an offset to possibilities of loss.

While we are on this general topic, one point should be particularly emphasized, viz., that foresight, purely as such, deserves nothing whatever. The man who, foreseeing a rise in certain land values from a probable increase in, or shift of, population, puts himself in a strategic position to profit by it, is not thereby rendering any service to those from whom he derives return. Foresight used to give a service may earn remuneration. Foresight used to get something for

nothing seems hardly deserving of any special protection.

§ 6

The Increment of Land Values in Relation to the Settlement of the American West

The expectation of an increase of land values, considered as an inducement to bringing new land into use, has sometimes been brought up in connection with the settlement of the West. It has been asserted, for example, that the lure of the "unearned increment" was instrumental in inducing the settlement of the West.[14] It has also been argued, in the same connection, that the stimulus to settlement of the West and its earlier settlement because of this prospect of an increasing value of the land, benefited not only the settlers, but also those who remained East, and that, therefore, the unearned increment was "diffused" throughout the country.[15] Many have doubtless drawn from this contention the conclusion that the descendants of the early settlers in the West are clearly entitled to any increase that may have come to the value of their land. The argument regarding the diffusion of the increment is based upon the belief that the prospect of rising land values, by inducing a movement of the labor supply westward and its settlement upon the farms, prevented the labor congestion in the

[14] See J. B. Clark, *The Distribution of Wealth*, New York (Macmillan), 1899, pp. 85-87.

[15] *Ibid.*

East, in the cities, and even in the agricultural West from being as great as it might otherwise have become. Hence, it can be argued, the settlement of the West prevented the marginal product of labor from being so small and wages from being so low, in the East and elsewhere, as might otherwise have been the case.

But may we not, in some degree, question the conclusion that an unearned increment, or any substantial amount of it, was necessary to get the West settled? After all, relatively few of the settlers were fortunate enough to take up land which afterward became part of the sites of cities and it is probable that most of them did not seriously expect such fortune. May we not conclude that, for the most part, they might have been willing, for the possibility of enjoying homes where the marginal product of their labor gave promise of being high to go and take up new land even though the value of the bare land, as such, could not be expected greatly to increase?

If not, however, if, on the contrary, the prospect of an increasing land value was an essential part of the invitation of the West, then the question arises whether settlement was hastened, to the temporary economic loss of those who went first and to the later loss (through rent payments) of those who followed, and whether a more gradual spreading of population westward, when a real need rather than an artificial inducement

began to operate, would not have been economically better.[16]

As to the question whether the early comers or their descendents are entitled to rent compensation for being earliest because of any service that they thus rendered, we must bear in mind that any such compensation, under our present land system, does not come from those easterners whose wages are conceivably higher because of the drawing off of surplus population to the West. Nor will it probably come, for the most part, from wage-earners in the West whose wages have been made higher by the movement to the land so stimulated by the prospect of securing a profit from its appreciation. Under the present land system, the rental compensation to the western landowners comes from people living in the West, and mostly from people who came a little too late to get land for themselves, or, in some cases, from people who had other ambitions. It is these people whose coming and whose demand for the use of the land bid up land rents. To them, as persons who have come to be inhabitants of the West, any artificially induced scarcity of labor in the East is no longer—if, perchance, it once was—an advantage. Their wages are not higher, but lower, in the long run, than if the West were less completely settled. For the marginal product of western labor is presumably less. The old alternative of taking up new and good land is

[16] Cf. Professor H. J. Davenport's article entitled "Theoretical Issues in the Single Tax," in the *American Economic Review*, March, 1917, especially pp. 22-26.

gone. Of course, so long as there was still other new and good land to be had, even western wages must have been kept up by the rush of labor to this land, but this would not continue to be the case as the land filled up and as the available free land became progressively poorer.[17]

In what sense, then, and how far, were the benefits of rising land values diffused? Was it in such a sense that the descendants of those who did not take up land must, in justice, pay the descendants of those who did, for the privilege of living and working on it? Are the descendants of those who did not acquire the land to be regarded as having so gained from the possibly slightly larger labor incomes of their grandfathers, or to have so lent their moral sanction to the system, as to be under obligation not to change it, even where cities have grown up and have made land which was worth its hundreds of dollars now worth millions? Is it their social duty to go on paying indefinitely for the use of land which would be equally available and which would be about equally desirable if any individual owner to whom or to whose descendants the payments for its use are made had never lived? Or can society in general be regarded as having ever even impliedly pledged itself that the increase in land values resulting from social growth should go

[17] Furthermore, the consequent inflow of new labor from the East and of immigrant labor into both East and West tended, by rapidly filling any vacuum, to prevent any considerable realization of such a gain in wages.

entirely to individuals and should not be subject to any considerable taxation by states or cities?

Is it not, indeed, clear that we are very definitely maintaining a land system which makes part of the public pay large sums annually to the rest of the public for no service that the recipients of these sums, or their ancestors, or any other landowners as such have ever rendered to the persons from whom their rental incomes are derived? Why are those who thus pay without getting, under an obligation to maintain the system and to continue paying through all future time? Must countless generations of the disinherited be held under obligation to pay for a somewhat problematical "diffusion" benefiting some of their ancestors, a diffusion from which most of the descendants of those who may thus have somewhat benefited have very likely realized nothing whatever? We do not allow the creditors of a father to require payment for the father's debts from the labor income of a son, however much the father may have gained—in his lifetime—by his borrowing, nor do we insist on "compensation" to a creditor who is therefore unable to recover. We adhere to this policy because we do not consider it socially desirable to make one class partially the slaves of another class, to compel them to spend part of their time working for that other class without return from the latter, even though the latter class may conceivably have rendered a real service to the ancestors of the class that pays. May it not be as much contrary to good public policy to recognize any implied

contract by which, as an offset to the possibly temporarily larger incomes of one class, the descendants of that class have to pay others for the use of the earth? Is not the recognition of any such implied contract equivalent to recognizing the right of men to sell their children or their grandchildren into slavery? We would not recognize the latter right, in our society, directly and avowedly, even if the children were sold to get food to save their lives. Must we recognize the former? It is true that, in the case of land rent, we *associate* the payment made with a material thing, the land, but are we not, nevertheless, in essence, dealing with a payment for which no service is rendered?

Let no one conclude that our argument tells equally against all inheritance on the ground that those who pay interest for the use of capital accumulated by previous generations are paying for a service to persons who did not contribute that service. For it well may be, in the case of inheritance of capital produced by human labor, that the prospect of descendants' reaping return from it is a condition without which, in great part, it would not be saved. If so, the interest is paid for a service which, except for the prospect of interest payment to descendants, might never have been rendered; it is paid for the use of capital which, except for expectation of reward to descendants, might never have been added to society's equipment. As long as the family affections endure in their present strength much of the happiness of parents

will be realized only as they are permitted to work for the future prosperity of their children. General welfare and happiness would probably not be furthered by a policy which should entirely deprive parents of the privilege of bequest. Nor would the community probably get, in the long run, the use of so much capital, for less would probably be accumulated. A parent will be less likely to save and to invest his earnings in the education of his children if he believes society will appropriate all the gain and will not allow his children to reap a larger income for the larger service which such education enables them to render. And in like manner, a parent will be less inclined to save and invest in capital construction if he believes that society will allow his children to reap no advantage in return for the service from such capital.

There is no intention to suggest, however, that inheritances should never be taxed or that the law of inheritance is not in need of modification. When, as at present, the state provides for inheritance of the property of intestate decedents by remote collaterals who have often been unacquainted with their unconscious benefactors, it can hardly be said that the policy adopted has been dictated by the necessity of encouraging accumulation or by the desirability of giving men and women the happiness of safe-guarding the future welfare of those for whom their affections are strongest.

But whatever may be the advantages to the general welfare of maintaining in considerable

degree the right of bequest, there appears to be no reason to believe that to keep the major part of ground rent from going into the pockets of individuals would decrease the amount of land or the amount of any other capital.

If it is said that the western homesteaders sometimes had to fight the Indians, it can also be said that they frequently and largely received protection from the United States army paid for out of the general tax fund; and it may well be that men who served in the army and gave such protection, or men who contributed in taxes to maintain it, afterward came to have to pay, for the use of land, persons so protected. It is to be questioned whether any service of the pioneers, still less of the droves of later settlers, who followed them while the land was still cheap, was so important and far-reaching that their descendants can be held to have acquired a right to receive tribute for all future time because of this service, and that the millions of dollars of situation rent in the cities of Chicago, St. Louis, Denver, Los Angeles, and San Francisco really all represent legitimate payment from later comers and their descendants for the *equivalent* services to these later comers and their descendants, of those who chose to come first. Surely, one who holds this needs take but a short step farther to prove that the whole idea of the unearned increment is a myth, or the product of diseased imagination, and that, really, anything that anyone gets is earned by equivalent service to the one who pays it.

§ 7

Ownership of Land by Small-Family Groups versus Increasing Population in Other Groups

A special phase of the land problem arises in connection with the rights of small holders of land whose land has been handed down to them by ancestors who have deliberately, when population was increasing, kept their own families small, and who have hoped, thus, to bequeath to their children a sufficiency of land for the latter's use. We may advantageously approach this problem by considering a related one—that of immigration. There seems to be a growing opinion that a highly civilized and prosperous country having a low birth-rate may properly protect its standards of living and of wages by excluding from its shores the teeming millions of more prolific races whose multiplication reduces them to poverty at home and whose invasions of other and happier lands tends to make such poverty world-wide. To let them enter may only make room for new millions in their native country, relieve the poverty of that country but slightly, and add to it the poverty, due to immigration, of the low birth-rate country. Yet the latter country, if it practices exclusion, is maintaining a monopoly of its land for its relatively sparse population, and is shutting out from any possible use of this land the millions who fain would come.

What now of the thousands of families in a country who have each enough land for the most efficient application of their own labor and for comfortable subsistence and who, by limitation of

offspring, are preventing the undue subdivision of such land into small plots—who are doing their share in keeping up the general level of comfort by trying to prevent too great an increase of population in relation to available land? If the rest of the nation multiplies quite without regard to natural resources or land space and so forces down the margin of labor production, does society's right to land space justify redividing the land equally, thus directly depriving the families which have kept down their numbers of the standard of comfort which would naturally result from their low birth-rate? Or does this right of society justify a system of taxation of rental values which indirectly accomplishes the same result? For it should be clear that if the land so held by individual families comes to be more valuable, not by virtue of its yielding more, but solely because pressure of population increases the demand for it, then to take the greater annual value in taxation will leave less to the owners than before. To express differently the same thought: if the policy of state appropriation of land rent is consistently applied, so that individuals get only the earnings of their other capital and the wages of their labor (employed or self-directed), then an increase of population which lowers the marginal product of labor will not only enable the state to collect more than previously from individual landowners, but will leave less to them as individuals and families than before. Such an increase of population will leave less than before even to those families which are in no way responsible for the

population increase from which flows their new family poverty. For this reason—viz., because it would remove a stimulus to desirable limitation of offspring, because it would penalize the far-seeing, because it would give to families whose ideals tend toward universal misery the inheritance of those families whose ideals, if generally adhered to, would bring universal plenty—such appropriation of all rental values of land might not be a desirable social policy. Part of the rental value of land, even of agricultural land held by actual cultivators, may, perhaps, fairly be taken, but not all.

To illustrate the principle involved, suppose a piece of land capable of supporting a man and his family, a piece of land just large enough to utilize one man's time to the best advantage. Further labor than he could give would then be attended with diminishing returns. To make the illustration quantitative, we will assume that on this land the labor of one man will produce 500 units (e. g., bushels of wheat), of two men, 900, of three, 1,200. If, at the start, the land is marginal, the occupant and owner will enjoy 500 units of labor income. If population increased to such a point as to force wages for this grade of labor to 300 or less, he could afford to hire, perhaps, two other men, since the second would add just 300 to the product; he would therefore pay 600 in wages to the two men, would receive 300 in labor income for himself, and would have 300 left as rent.[18] The owner's

[18] For simplicity we are eliminating income on other capital from consideration.

total income would then be 600. We could take 100 of this in taxation and still leave the owner's combined rent and labor income at 500 which he was getting as a labor income, with no more total effort, before. But if we take all of the rent in taxation, we leave him only his 300 labor income, which is not much over half of his previous income; and we have subjected him to deprivation through an increase in population for which he was not responsible and which was clearly undesirable from the point of view of general welfare.

However, in practice the increase of land values is usually in large part an increase in the value of special sections of land which growth of population causes to become more advantageously situated in one or more ways. As the country grows, certain places come to have new and special advantages as market centers, as ports, etc., and thus acquire an increased rental value not dependent on a lowering of the margin of production. Increase of population in a fertile, unsettled plain, containing a great deal of land of approximately the same fertility, might not for many years lower the marginal product of labor. To be sure, the later settlers might have to go farther, but the more distant points would be no more isolated than the first-taken land was at an earlier date, and the extension of roads and railroads might make then less so. Rent would rise, not because the margin has become lower, but because the situation of a part of the land relatively to markets, population centers, etc., has become better. Still more clearly does this fact stand out when at

some point on the plain a city develops, called into existence by the increasing number of those whom its merchants, artisans, etc., can effectively serve. Its growth is, possibly, an advantage even to the owners of marginal land, but confers a special advantage on those whose near-by location enables them to reap exceptional profit from supplying the city needs as to produce. The growth of the city confers a still greater advantage on those whose land comes to have value for distinctly urban uses. The occasional settler who or whose descendant finds that his land is in the center of a thriving city may become a millionaire as a consequence of conditions to which his own contribution was negligible if anything at all. In this case and, in general, in a country like the United States, land rent has probably grown much more largely by the increase of the possibilities of special, often supra-marginal, land, thus creating a differential between it and marginal land, than by forcing cultivation to a lower margin. In short, any desire that we may feel to protect small landholders who limit their families from being made to suffer through the general increase of population, need not prevent us from taking, in taxation, most of the rental value of land, including that of mines and power sites, and nearly all of the rental value flowing from its situation of city land.

§ 8

The Bearing of the Contention that there may be Other Unearned Increments Not Especially Associated with Land

It has sometimes been pointed out, by way of objection to the single-tax proposal, that land rent is not the only income which is of the nature of an unearned differential. Sometimes the incomes of genius in excess of what persons of ordinary ability can secure are presented as an analogous case. Whatever may be, in some respects, the degree of likeness, the two cases certainly are not alike in all respects. Thus, it may not be equally possible to tax largely and successfully the incomes resulting from the exercise of genius, as to tax land rent, for, in the case of the large incomes of the exceptionally gifted, the attempt to tax them heavily might conceivably discourage effort and cause the former recipients of these incomes to be satisfied with smaller—and, therefore, untaxed—returns. Taxation of the rental value of land, however, if based upon such general considerations as the evident yield of neighboring sites and the apparent market value of the land to be taxed, i. e., if the tax is not made larger because an efficient producer or business man gets more from his land than others could get, would probably in no wise affect the owner's choice of uses for the land or his intensity of use of it or the efficiency of his use of it. Having a tax to pay which was independent of his efficiency, he would be just as eager to earn the maximum income out of which

to pay the tax as he would be to earn the maximum income if he were not taxed.

Indeed, the levying of a tax upon the *potential* situation rent of land, whether actually received or not, would discourage the speculative holding of land out of use and so would operate to prevent the forcing up of rent by any scarcity of available land induced by such speculative holding.

Economists whose social sympathies (of the influence of which they are not always conscious) or whose training by their former teachers, incapacitates them for seeing any distinction between land and capital and predisposes them to accept superficial resemblances as a conclusive defense, are fond of saying that other values than land values are enhanced by social forces. It is true enough that dress suits are likely to have less salable value in the Ozark Mountains than in the centers of wealth and fashion and that a twenty-story office building is worth more in New York City than in a country village. Nevertheless, cases of monopoly excepted, it can hardly be denied that, year in and year out, produced goods cannot be sold anywhere for much more or much less than the cost of producing them in the places where they are to be sold. An occasional dress suit may have to be sold at a sacrifice in the Ozarks, and a building too large for the needs to be met may prove to have been a mistaken investment in the country village. But as a general rule dress suits will not be produced in or transported to the Ozarks except as the anticipated price covers costs, nor will skyscrapers

be regularly built to sell for less than a return which seems reasonable in relation to building expenses. And, on the other hand, where competition is active and is carried on fairly, the prices of goods which have to be humanly produced cannot go much above costs. Even making all possible qualifications for cases of obsolescence and for changing conditions of production, can anyone say that cost is really an element of corresponding significance in the case of land rent?

Again, it may be said that there is possible no large remuneration, in a sparsely settled primitive community, for the person gifted with an exceptional voice or other highly specialized talent. But neither is so large a *service* possible in return for the remuneration. When such remuneration is received it is in return for an equivalent service rendered by the person who receives it, and this is not the case with the situation rent of land. May not considerations of eugenics as well as of efficiency in service, apply differently to the proposition to tax such incomes than to the proposition to tax land rent?

Furthermore, some of the incomes which are often thought of as unearned are chance gains so offset by corresponding deficiencies of incomes at other times, as to mean no average loss to the public. If the failure of the Argentine wheat crop may unexpectedly give to American farmers, grain dealers and millers a higher return than was contemplated when they made their expenditures for seed, labor or grain; so, also, an unexpectedly large crop of wheat in Argentina,

Canada, or elsewhere, may compel the same persons to accept prices which fall far short of compensating them for the expenditures and effort undergone. The general public is likely to gain in the latter case as much as it loses in the former. But the general public never gains from an unexpected fall in the rental value of land except in the sense that the public is then *less exploited* than before. It continues to be exploited, though in a smaller degree. There is little point to an attempt at equating continuous exploitation varying in degree, with occasional excess pay for service which is likely at other times to be underpaid.

It will be worth while, here, to emphasize the fact that land rent involves exploitation when the land is used in socially desirable ways as well as when it is used anti-socially. In the latter case, payment is made for a disservice. But even in the former case payment is made for a zero service or for a service less than equivalent to the rent. Where wages of labor, interest on capital or rent on land are secured by activities or by uses of property which definitely injure the general well-being, which are anti-social, *these activities or uses should be prohibited* rather than that men should be allowed thus to secure wealth which society afterwards taxes. When a business concern by means of unfair competition, e. g. by misrepresentation of competitors' goods or by securing discriminating rates on the railroads,[19]

[19] See, for a fuller discussion along this line, the author's *Principles of Commerce,* New York (Macmillan), 1916, Part III, Chapter VII, § 4.

succeeds in getting extra profits which its rivals do not get, or, being able to undersell the rivals discriminated against, gets business which would otherwise go to them, we have a clear case of unearned income resulting from anti-social activity. Success is made to depend, not on superior service, not on superior efficiency in economizing labor, but on the ability to exclude rivals from the market even if, as may well happen, these rivals are much more efficient in the proper business of both or all. The public cannot afford to let the principle become established that success and wealth may be gained by such methods. In the long run, consumers must expect to suffer unless competition of this sort is effectively forbidden. So too, in the case of monopoly, which gives more than an ordinary return to effort or to the users of capital or land, it is the consumers of the monopolized article or articles who are entitled to relief since it is they alone who are exploited.[20]

[20] No opinion is here expressed regarding the relative desirability, from the viewpoint of preventing high monopoly prices to consumers, of public regulation and of public operation of industries which have to be or ought to be of monopoly size. But if public operation is chosen, it would seem, on the principles set forth in this book, undesirable that the public should pay for the capitalized value of the land rent included in the prospective returns of such monopolies. If not to pay for such capitalized exploitation in cases where the public chooses to take over the ownership of any industries is objectionable as discriminating against some landowners while allowing others to continue to enjoy site rent, then the taking over of these industries by purchase should be deferred until a general policy is adopted towards all site rent. Nor should government for any long period guarantee interest or net dividends on the bonds or stocks of companies whose property it undertakes to oper-

In general, industrial free-booting should be stamped out, so far as this is possible. *But for unearned income in the form of land rent, purely as such, the tax method is adequate and is the logical method of correction.*

Again, even if there are—as there may be—other increments than situation rent which are equally unearned, it does not follow that the heavier taxation of land values should be deferred until such time as a general agreement is reached regarding such other increments. It may suit the views of reactionaries to have us use the claim that many and complicated reforms are needed, as a reason for delaying one the justice and desirability of which are reasonably evident, but that kind of attitude should scarcely suit anybody else.

§ 9

The Taxation of Future Increments of Value

Hesitating to accept the more radical proposal of Henry George in favor of sweeping into the

ate. For suppose that during the period of such a guarantee, one or several of the States, or the Federal government itself, should choose to adopt a new tax system, e. g. to increase very greatly the tax on site values. This would for all other industries than the ones in question diminish the land-rent part of their incomes, though to be sure, removal of other taxes might increase other elements in their incomes. But, whatever the net result on these other industries, the holders of the securities of the government-operated industries would experience no effect as regards their annual returns. The better way would be to guarantee (if there is to be a guarantee of past earnings) previous earnings plus previous taxes minus future taxes.

public treasuries situation rent both new and old, some writers have contented themselves with advocating the public taxation and use of *future increases* in the rental value of land.[21] This advocacy, they seem to have felt, frees them from the necessity of urging anything that looks like confiscation. But there are reasons for thinking that if the more radical proposal involves confiscation, the other does also, though it may be less in degree; and it is doubtful if the more moderate plan can be successfully defended without raising a presumption that the more far-reaching scheme has also something in its favor.

To the proposal that only future increases in rental value be taken by the state, it has been answered that to take future increases without compensating landowners in the case of future decreases in the value of their land unfairly deprives them of the chance of gain while still leaving them the risk of loss. In the words of F. A. Walker, "the game of 'heads I win, tails you lose' is not one in which the state can, in fairness and decency, play a part."[22] If one believes that the *present* rental yield of land, as well as future increases of this yield, should not go to the private owner, this contention will not disturb him. Otherwise it may seem to be convincing.

There still remains the argument, however, that, in a growing country increases are frequent and

[21] See, for example, Taussig, *Principles of Economics,* New York (Macmillan), 1912, Vol. II, p. 102. This scheme was suggested by John Stuart Mill in the middle of the last century.

[22] *Political Economy, Advanced Course,* New York (Holt), 1887, pp. 416, 417.

decreases rare and that, therefore, no large injustice would be done by the scheme. But what if the opposition contends, as it plausibly may, that the present owners of land have, in many cases, bought it at prices which they were willing to pay only because of the prospect of future increases? The opposition may contend, in other words, that expected future yields have been discounted into the present price of the land, and that, therefore, to tax heavily these future yields will deprive such purchasers of an income they paid to receive, and will depreciate the value of their land below the price at which they bought it. Some increases, to be sure, may come as unforeseen luck, but many must be, at least in part, anticipated. Is a tax on such increases any less "confiscation," so far as the capitalized value of land is concerned, than would be a moderate increase in tax which would take away a part of the constant annual rent of a piece of land bought with no expectation of a rise, but bought in the belief that its owner would be left undisturbed in the enjoyment of the entire rent?

Without now pursuing this comparison further, we may note that a doctrine according to which the public has no right to take by taxation future increases in land values, increases not earned by any service rendered by the landowners, must, logically, be opposed to other governmental policies of which most of us are in favor. Such a doctrine would mean, for instance, that the purchaser of stock in a company which contemplated —or the purchaser of whose stock foresaw the

likelihood of its undertaking—selling out to, or becoming part of, a monopoly and so securing monopoly profits, since such purchaser paid more for his stock because of this expectation, must be allowed to enjoy these monopoly profits, or, if they are taken away from him, must be *compensated.* Has the purchaser of stock under circumstances of this kind any such claim even if the policy of limiting monopoly profits is one which was not previously in force but was adopted after he purchased the stock?

§ 10

Land-Value Taxation in Relation to the Theory of Vested Rights

The principal objection actually felt, if not the one chiefly emphasized by opponents of land-value taxation, is an objection based upon respect for vested rights, viz., that such a scheme of taxation would take away from the owners of land a large part of the capitalized value of their property by making it impossible for them to enjoy from it the expected future income. If a piece of land yielding $1,000 per year is valued on a 5 per cent basis, its selling price would be $20,000. To take $200 a year would mean, since a tax on land rent cannot be shifted, that the selling price of the land must fall to $16,000. Hence, it is said, since such taxation takes from the owner a fifth of the value of his property, it is confiscation and a denial of vested rights. Of course what we definitely take is a fifth of the yearly income, but

since the value is dependent upon the income, the establishment of such a tax as a *permanent part of the tax system* in effect takes one-fifth of the capital. But how is it if through indirect taxation we take $100 a year from the family of a workingman whose annual income is $500. If the man's expectation of life is thirty years, would not the capitalized value of his income be well in the thousands of dollars, supposing it to be salable? And would not this capitalized value be reduced one-fifth by a tax of $100 per year if such a tax were adopted as a permanent part of the tax system? To be sure, workmen are not in the habit of thus capitalizing and selling the right to their future incomes, but is the injury to them from a tax any the less for that, or the fundamental nature of the problem essentially different? If a need of increased revenues were thus met, there might be sympathy expressed for the working classes and objection to the tax as an undue hardship upon them, but the word "confiscation" or the expression "vested rights" probably would not be used. No complaint would be made that the fundamental rights of property were being invaded or that society had violated any implied pledge.

It seems to be this last motion, that of an implied pledge or sanction given by society, which makes many thinkers regard so askance any proposal for radical changes. We must not take rent in taxation because the enjoyment of it is a vested right. "Society" has allowed individuals to appropriate nearly all of rent in the past and various persons

have bought land, relying upon the continuance of the system. Hence the private enjoyment of land rent must always be allowed unless compensation is paid by the dispossessed to the possessors.

If we are perfectly frank in our adoption of this vested-rights argument as a reason for refusing to take from those enjoying them incomes not earned by service given to those who pay them, we shall have to admit very frankly that several types of income ordinarily objected to by economists must be continued indefinitely. Thus, in consistency, we must protest against any regulation of monopoly which will do away with the monopoly prices on which any monopolists had counted, and particularly so if the monopolists have bought stock at a higher price because of the expectation of monopoly profit. "Society" has permitted this profit in the past, has lent its "sanction" to it, has allowed people to buy stock in the expectation of realizing an exceptional profit. May society, therefore, by its regulations cut down this profit? Must it not pay the monopoly prices indefinitely or else *compensate* the monopolists by paying them in advance the capitalized value of their expected future monopoly profits?

So, again, if we would be perfectly consistent, we must not remove the protective tariff on goods when those who have invested in the companies producing such goods have paid more for their stock than they would otherwise, in the expectation of deriving protected profits. In other words, since, largely through the influence of those engaged in protected industries, the policy of

protection has been maintained for a limited number of years, society at large owes such industries a continuance of favor. In still other words—for this is the inescapable implication—those who wish to consume the protected goods may properly be required to pay for these goods an excess price, a price above the real value of the service given. In this view of the case, the taxed class, being part of society, has some sort of responsibility for what society has done, even for what the class that profits by protection has influenced society to do, and has no right suddenly to refuse longer to pay tribute to the protected class.

The foregoing is a view which the writer cannot bring himself to accept. Society is under no obligation nor is any class in society under an obligation to pay tribute to any person or group of persons for all future time. Still less is a class which, *while another class has controlled government,* has been exploited, under obligation to continue to let itself be exploited if and when it is able to get into the saddle. Society as such has given no pledge, and is not in a position to give a pledge, that its policy will not change. Those who buy stock in a monopoly or invest their money in a protected industry must be held to have done so, not under any guaranty of permanence, but at their own risk, knowing it to be the right of the rest of society to cease paying the excess prices and adopt a new policy at any time.

How does the matter stand in the case of land values? Is it correct to think of land-value taxa-

tion primarily as a system of taxation that infringes on vested rights by taking something away from landowners? Is it not more enlightening to call to mind that, indeed, the rest of society is continually (weekly, monthly, or annually)[23] paying tribute to the owners of land, tribute for which neither these owners nor any previous owners as such have ever rendered a return to those who thus pay them? When we say that for the public to take in taxation most of the rental value of land would be to confiscate the "property" of those who had previously enjoyed this rent, do we not express the fact the wrong way about? Would it not be nearer the truth to say that the rest of society simply refuses longer to have its earnings confiscated by the landowning class? Does the situation value of land, the value apart from improvements, represent anything else but the estimate, in a present valuation, of the future tribute, the future payments without corresponding services, which the owners are in a position to get from others? Are not the masses paying a perpetual tax to the owners of land for the privilege of living upon, and making use of, sites which were neither produced nor rendered valuable by the owners? Suppose the masses who are thus paying tribute without receiving either labor services or more capital equipment for production than would otherwise be available, or indeed anything else worth the price, simply decide to stop

[23] Cf. Henry George, *Progress and Poverty*, Book VII, Chapter III, particularly pp. 362 and 363. (Page reference is to edition of 1905, Doubleday, Page & Co.)

paying this tribute! Would their doing this be confiscatory? And must they, if they are to cease paying, compensate the landowners by giving to the latter interest-bearing bonds worth as much as the land, and payable finally, as to interest and principal, by the same persons who now pay rent? Is this not equivalent to saying, not only that those who are slaves in the sense that they devote much of their labor to the support of a parasitic class cannot be freed without provision for compensating the parasitic class, but also that the compensation must be provided by the slaves? Could we reasonably expect the slaves, once they were in the saddle politically and thoroughly understood the matter, to take this view of it?

As an analogy to the payment of tribute for the use of land to persons who are in no way responsible for its existence, let us suppose that an ancient king or a small ruling caste has somewhere given to a favorite or to someone of political influence the negotiable privilege of collecting each year a certain amount of the taxes and turning them to his own use. The favorite later sells his "right" to another for a large sum of money which that other had honestly earned by hard and faithful work at a useful task. Some time after this second arrangement is made, the taxed class overthrows the power of the king or aristocracy and establishes itself in power. Must this class go on contributing the tax because the would-be recipient paid to get it, notwithstanding he paid nothing to those whom he now expects to pay him? And if they refuse, using the money in

question instead as part of their general tax fund for common purposes, are they guilty of an immoral act? Must not the would-be collector of tax money be assumed to have made his purchase subject to the condition that society could in its own good time make such changes as its members might see fit? And if the remainder of society came to believe that, in the long run, *the greatest good to the greatest number* would be attained by establishing a system in which, in general, each should profit according as he served, and in which, *except as some special social reason justified the apparent exception,* no one might receive tribute from those he did not serve, would not society have a moral right to establish such a system?

§ 11

A Few Additional Considerations

The truth is that few of those who advocate large taxation of land values, even of the single-taxers, urge any but a gradual change in the rate of taxation of land. A sudden break with the past is not sought for. Nor, if it were, would there be any serious likelihood of its coming. Though we may work for the change with ardor, it will come through compromises and little by little and, probably, through state and local action.

Even if, here and there, a town or city increases *rapidly* the amount of tax it puts upon land, this may not, while the new system is not general, cause very considerable loss to landlords. For it will be likely to mean that in those cities businesses and individuals are relieved of other

taxation which elsewhere they have to meet, and the policy will, therefore, probably cause these towns to be more rapidly settled and land rents in them to go up.[24] This is a result which would not be brought about if the equally rapid increase of land-value taxation in other places kept the balance.[25]

Furthermore, even if the tax were generally applied, no great loss would fall on small land-owners who have improved their land and who themselves live on it, persons who own their own homes and little else, since to them it makes relatively little difference whether the principal tax is on buildings or on land.[26] But to persons owning land and buildings which are used by others or for the production of goods to be sold to others, it may make a considerable difference, since the tax on land clearly cannot be shifted (if general), while the tax on buildings very possibly can be, at least to some extent.[27]

[24] Suggested by Professor H. J. Davenport's *Exercises,* printed to be used with his *Economics of Enterprise.* Cf. pp. 28 and 29 of Professor Davenport's article in the American Economic Review, March, 1917.

[25] Some may regard it as an objection to a purely *local* application of anything approaching the single tax and the local use of the funds derived from it, that such a policy gives to labor in the town adopting it a benefit more than it receives elsewhere and therefore induces labor to come to such a city when otherwise it would stay away, and, by inducing surplus labor to come, brings diminution of the product of this particular labor.

[26] Cf. Henry George, *Progress and Poverty,* Book IX, chap. iii.

[27] Whether a tax on all the earnings of capital regardless of the line of investment could be shifted and to what extent, would depend on whether and how far such a tax diminished saving. See

The removal of taxation from all capital and its concentration on land values would of course involve an increased burden to those whose property was chiefly in land values. But the immediate loss to the person who owned both land and capital would be minimized by the fact that he would be enjoying relief from taxation on his capital[28] (the interest from which, if the capital was being used in socially advantageous ways, would be earned), at the same time that he was being made to pay heavier taxes on his land (the situation rent of which was principally unearned). In the end, the removal of taxation on capital would presumably reduce interest rates if the leaving of larger net returns to owners of capital operated to encourage capital accumulation. But for some time the average property owner would probably be largely compensated in his greater net interest on capital, for the reduction by taxation of his net rent on land.

In truth, when all is said regarding confiscation, we must recall that government cannot possibly raise revenue without taking something from somebody. And if we have to choose between taking an unearned income already being collected by part of us from the rest of us, or allowing part of us to enjoy such an unearned income and taking

the discussion of the effect of interest on saving, in Chapter III, § 5 (last three paragraphs of section).

[28] If the shift in taxation from capital to land were great and sudden, therefore, the *rate* of interest would be temporarily higher and whatever was left to landowners of site rent would have to be capitalized, for a while, at this higher rate.

something more, in taxes for common purposes, from the rest of us, the choice should not be difficult.

Nor should we be turned back by the contention that the proposal so to raise much or most of the public revenues, at least for local and, perhaps, State purposes, does not conform to the ability theory of taxation. It has never been finally established that taxation ought to be in proportion to ability. Taxation ought to be arranged with a view to societal welfare, and this may or may not mean that it should be in proportion to ability. Societal welfare may be better furthered, for instance, by preventing exploitation and the consequent receipt of unearned income, than by mathematical precision in apportioning taxes to total income of all sorts. The ability theory of taxation rests upon much the same ground as the theory of charitable relief. In the case of charitable relief it is argued that the sums thus expended have a greater (marginal) utility to the poor and helpless who receive them than to the relatively prosperous who contribute them (voluntarily or otherwise). In the case of taxation it is argued that a large requisition from one who is prosperous may involve less deprivation and sacrifice than a small requisition from one who is comparatively poor, or, otherwise expressing the same idea, that to take money from the well-to-do, even though they have fairly earned it by giving equivalent service, and to expend it for public purposes so that a large part of the benefits from its expenditure is received by the relatively poor, will increase utility and will increase the sum total of happiness. Assuming

wants to be equal, one might with some plausibility argue that the maximum of aggregate human happiness could only be attained by carrying this principle to the point of equalization of incomes. But long before incomes had been equalized the effects on efficiency of labor, perhaps, also, on the rate of accumulation, and, possibly, on biological selection, resulting from neglect of the principle of making incomes received depend on services rendered, would become serious. The greatest welfare would *not* be thus secured, *in the long run.* If, therefore, we venture to make some partial application, in our tax system, of the principle of equalizing incomes, we must *sharply limit our application of this principle* in the taxation of earned incomes lest we depart too far from the principle of *proportioning incomes received to services rendered.* But whether or not there are classes which, because of their poverty, ought to receive from the community in personal incomes and in services from government, more than they contribute, in taxes and otherwise, to the community, it seems quite certain that the recipients of situation rent, as a whole, do not constitute such a class. If among them are found the ubiquitous "widows and orphans" whose anticipated distressful state has been made the basis of opposition to many other necessary reforms, it is better that society should make special provision for them in those exceptional cases where the shifting of the tax burden from other values to site values threatens them with poverty, than that it should forever maintain a bad system. Indeed there must be many widows and orphans who are

the victims of this system, of which some of their class may be the beneficiaries.

Finally, high taxation of land values cannot be discredited by referring to its propaganda as an outgrowth of doctrines of "natural rights" while at the same time unconsciously appealing to what seem to be assumed "natural rights of property." On the whole, the supporters of high land-value taxation seem to have been as consistent as their opponents in making their appeal to utilitarianism.

There is here, it should be noted, no attempt to argue that the tax on land rent should necessarily be a *single* tax. A tax which would take the greater part of site rent might or might not provide sufficient revenue to meet the legitimate expenses of government. It would perhaps provide all the funds needed for local and State governments and possibly, also, for ordinary Federal expenditures. But until permanent world peace is established, the Federal government needs a source or sources of revenue capable of great emergency expansion, such as is provided in the income tax and other Federal taxes. Extended discussion of the merits or demerits of these taxes, however, lies outside the scope of this book.

§ 12

Summary

At the beginning of this chapter it was shown that land rent is fixed by the marginal productivity of land and is a surplus over the interest to waiting and the wages of labor, a surplus the amount of

which cannot be increased by the owners of land to make up for the taking by taxation of any per cent of it. The attempt was then made to distinguish briefly between rent of land and interest on other capital. The situation rent of land we found to be an absolute amount, not determined by the value of the land or by its cost of production, but an essential element in the determination of the value of the land. The value of reproducible capital, however, was found to be directly determined, in large part, by cost of production, analyzable into alternative returns of the productive factors used. The productivity of capital appeared to be an important influence, perhaps the most important direct-acting influence, fixing the rate of interest. It further appeared that the interest on capital, when this capital is produced and saved by effort and waiting respectively, and when it is used in socially desirable ways, is earned. The interest is earned in the sense that the effort and waiting done by the producer and saver of the capital secure for the community as much of wealth as the capitalist receives in interest. On the other hand, the situation rent of land appeared to be a payment for benefits due to natural conditions or to social growth and not for services brought into existence by the owner of the land. Thus, the rest of the community is perpetually under taxation to support a class of landowners from whom, as such, no equivalent return is received. The landowner who has bought his land, though he has given an equivalent for it in value of something else, nevertheless cannot be

said to give a service to those from whom he derives rent, which would not equally have been available had neither he nor any other landowner ever lived. Hence the private receipt of rent violates the utilitarian principle that each should receive remuneration or income only in proportion to service rendered to those by whom the remuneration or income is paid.

In the course of our study, however, it became necessary to make certain qualifications and to meet certain criticisms. The rent of land is clearly not all an unearned income. Part of it is interest on the cost of street-cutting, paving, etc., usually met in whole or in part by special assessments on owners of contiguous land. Since these owners of land chiefly benefit through a resultant increase in the rental and salable value of their land, it seems just that they should bear special assessments. But the justification of their having to pay these special assessments depends upon their being allowed to receive, in higher rental value of their land, a return on the cost of the assessments. Various alleged services of city landowners, such as exercising control over the class of tenants in any locality, or seeking out, developing, and advertising new sites, were next considered. The first did not seem to be a service for which we are necessarily dependent on landowners or, in any case, a service so costly to them in effort as to justify very much of rent. The seeking and advertising of new sites and bringing them into use at an earlier date than their advantages would otherwise be realized may sometimes be a service to the present generation, but is not clearly a service to later generations

who would eventually, with growth of population, have taken up this land anyway. Hence, if this is a service justifying rent payment, it can justify such payment only for a limited time. It is like the service of an inventor who gives us, somewhat sooner than we might else have it, the benefit of a new idea in mechanics, and to whom we give a definitely terminable right to receive royalties. So, also, we were unable to conclude that the early settlers in the American West had rendered any such economic services as to entitle their descendants and successors to receive rent for all future time from the descendants of later comers. For there seemed no clear indication that any benefit was received or is being received by the later comers or their descendants, from either the present or the former owners of the land. If the "benefit" of rising land values was "diffused" in any sense, the diffusion was not clearly to those of the present generation who now have to pay rent to use the land. They may well regard themselves, if they choose to recognize the authority in the matter of those who did it, as "sold out" by a previous generation.

Nevertheless we concluded that increased value of land resulting from increasing population which forced down the margin of production ought not to be made an excuse for so taxing land rent as to leave with smaller incomes than before families which, to avoid overcrowding their own land, had refrained from rapid multiplication. The increase of those whose habits or ideals would eventually tend toward general misery ought not to result in so reducing the available space for cultivation or

in so increasing the tax on the land owned as to reduce greatly the incomes of a non-parasitic class with ideals of a different sort. This last consideration, however, seemed to tell with but little force against the high taxation of city land, since the value of such land is due mainly to increase of its special advantages rather than to a lowering of the grade of land at the margin of production.

The argument that taxation of land values should not be much emphasized because there are other differential and unearned incomes, we concluded has little force. Most other unearned incomes, such as those secured by monopoly and by industrial free-booting, require to be terminated, rather than to be continued in order that their recipient may be taxed. If there are other incomes of an analogous sort to land rent, the possibilities of taking them in taxation and the social utility of taking them should be separately considered. And in the meanwhile, the possibility of there being other unearned incomes is no more an adequate objection to taxing a kind of incomes we know to be unearned, than is the possibility of there being gentler ways of stealing, a reason why we should allow highway robbery to go on until we have reached an agreement about the proper way to deal with *all* forms of dishonesty. Let us not be too afraid of a transition period when we may somewhat discriminate between different sorts of unearned incomes.

To avoid the objection of infringement on "vested rights," some advocates of land-value taxation have proposed that only future increases

in the value of land should be specially taxed. But this proposal seems to ignore the fact that purchasers often pay a higher price for land in the expectation of these very future increases. How then, can special taxation of these increases be anything else than an infringement of "vested rights"? In truth, however, too great a respect for the "vested rights" of individuals comes perilously near to meaning no rights for society. It might be interpreted to mean that society could never modify any policy in the expectation of the continuance of which individuals had acted, without giving compensation. It might be interpreted to mean that when we undertake to regulate monopoly price, we must compensate the purchasers of monopoly stock, and that when we choose to remove tariff protection we must compensate holders of the stock of protected industries. If society is not bound to do these things, neither is it bound to go on, through all future time, paying landowners for services which not they but nature and society render. It may be desirable—as it is certainly altogether likely—that any great change should be made gradually, but that society, or the non-landowning part of society, because it has paid in the past for no service received, must either go on doing so forever or must buy itself free with no expense or loss to landowners, is a doctrine which even those who favor it prefer not to state, and doubtless will not now state, in all its bareness.

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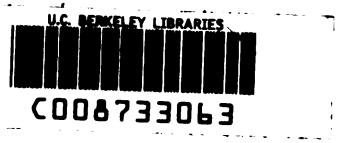
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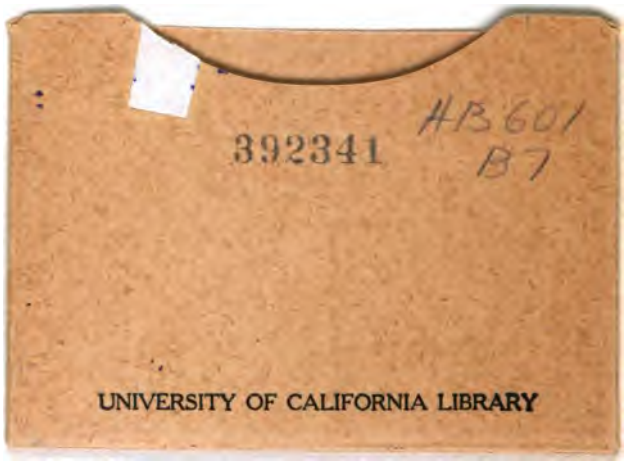
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